

ICMC 2023**The 3rd International Conference on Management and Communication****ECO-SHIFT AND ISLAMIC TEACHINGS TOWARDS
ENVIRONMENTAL SUSTAINABILITY: THE PRACTICE OF
RAINWATER HARVESTING**

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Abstract

Eco-shift is about change. In order to change holistically towards an ideal lifestyle and thinking process, there is a need for motivation that is religiously and culturally driven in the context of environmental sustainability. The objective of this paper is to highlight rainwater harvesting (RWH) as the alternative solution for water crisis in Malaysia by studying the concept of Eco-shift and also to link the concept with Islamic teaching by harvesting the natural gift of rain through the systematic green technology in moving towards environmental sustainability. Therefore, this paper analyse the role of 'Eco-shift' and 'Islamic Teachings' in the context of preserving the environment as well as the implementation of rainwater harvesting system in the community as an outcome of the concept applied. This qualitative study use content analysis method which the data is obtained through Quran, journal articles, books and reports by relevant agencies. As human being and a caliph of the Lord, harmless steps need to be taken to solve any crisis or issues that occur in the environment to achieve a promising future for new generation. As a conclusion, the finding of this study has proven the need for rainwater to be harvested as an alternative solution to water supply and the future research to see the level of readiness among community in using rainwater for daily activities must be carried out to enhance this practice.

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1. Introduction

Rain is a very special gift from Allah SWT that proves the power and wisdom of Allah SWT as The Creator. This can be seen through the words of Allah SWT in Surah Ar-Rum verse 48;

Allah sends the winds that stir up clouds and then He spreads them into the skies as He pleases and splits them into different fragments, whereafter you see drops of rain pouring down from them. He then causes the rain to fall on whomsoever of His servants He pleases, and lo, they rejoice it. (Quran, 30:48)

This verse show us how Allah explains the process of this natural phenomenon that occur through several stages before it sent down and enjoyed by the inhabitants of the earth. The environment has been created with precision and perfection which it is the ultimate possession that Allah gives to human being for the survival and development of civilization (Abdul Rahman, 2019).

In Malaysia, we are blessed as a chosen location that receives a large amount of rain that reach up to 970 billion cubic meters per year (Ujang et al., 2021). Whenever it rains, rainforests will act as a water catchment areas that catch the rainwater where the raw water will flow into the rivers to be used for every creature. According to Ir. Jaseni Maidinsa (PBAPP and PBA Holdings Bhd. CEO) water catchment areas and rivers are Malaysia's primary raw water resources that must be properly protected to ensure continuous good water supply which in other word this natural assets represents the beginning of the water supply value chain (Perbadanan Bekalan Air Pulau Pinang Sdn Bhd, 2019).

Water is essential to ensure a healthy ecosystem, the survival of all life and is the foundation for sustainable development in line with Goal 6 of Agenda 2030 to ensure the availability and sustainability of water resources for the present and the future. As of 2019, around 86.6 percent of the watershed forest areas in Peninsular Malaysia have been gazetted under the National Forestry Act 1984 as protected areas to ensure that water resources are of good quality, guaranteed and sustainable (Unit Perancang Ekonomi, Jabatan Perdana Menteri [UPE JPM], 2021).

However, the excessive increase in water demand, especially in the dry season or drought, causes issue in the supply of treated water to the community. According to Ujang and Mohd Yusoff (2020), on average water consumption in Malaysia exceeds 210 liters of water per day per resident in 2015 and this exceeds the recommendation from the World Health Organization (WHO) which is 160 liters per day. Allah SWT has created human as caliphs to live on the earth and carry out the responsibilities in an ethical way of lifestyle. So, every human are being responsible to maximize the use of every gifts with a good manner and are prohibited from wasting any of them. In the aspect of water, water must be protected by using it in tolerable amount and action must be taken to avoid the misuse or pollution that been caused by human's hand.

Based on Islamic law, Islam is submission and obedience to the commands of Allah SWT through the teachings of Prophet Muhammad SAW which can ultimately be translated into benefits for society through peace, security and well-being (Ujang & Mohd Yusoff, 2020). This goes accordingly to the principles of environmental conservation where it is the duty of every individual, society and government.

The world at this moment is facing danger due to the destruction of natural ecosystems and transformational steps need to be taken immediately to protect the survival of future generations.

The application of 'Eco-Shift practices as has been introduced by Ujang (2019) would be the most appropriate and suitable transformational step that can be applied into the water management of our country. Eco-shift is about 'blending the approaches and methodologies of change from the top-down to the bottom-up. Eco-shift is not rigid program of transformation where specific steps are to be followed religiously. Eco-shift provides insights, aspiration and understandings on various issues related to transformative change from individuals, family, organization, national and global perspective' (Ujang, 2109). However, shifting and changing the people's mind-set is the main aspect that will determine the success of the implementation that adhere the appropriate legal requirements and contribute to the massive investment in infrastructure. We have to rethink and reshape our understandings, convention, customs, cultures, habits and involvement in water-related practices in order to embark on the transformation of Eco-shift (Ujang, 2019).

As the paper is highlighting the rain based on the Islamic perspective, the researcher will relate the topic with the concept of Eco-Shift in contributing to the solution of water issues such as water scarcity, excess water demand and lack of treated water supply in Malaysia. This paper is aim to study the concept by highlighting the rainwater harvesting practice as an alternative solution to response to those issues. Another objective of this paper is to link the Eco-shift concept with Islamic teaching to maximize the gift of rain by harvesting it through systematic green technology that is harmless to nature where at the same time fulfilling the role of human-being as the caliphs in this world.

2. Methodology

This study uses the method of content analysis. According to Long (2015), content analysis involves several things. First, examine the contents regarding the important contents, second, evaluate the content in detail, third, make comparisons with different documents, and lastly draw a conclusion at the end of analysing the information obtained.

Secondary data and information are obtained through journal articles, books and online materials. The researcher support the study by presenting the data from the observation and a brief informal interview with the village headman of Desa KEDA Hujung Keton, Pendang, Kedah Darul Aman that face the issue of water supply.

3. Literature Review

Pelan Kelestarian Alam Sekitar Malaysia 2020 – 2030 (Environmental Sustainability in Malaysia 2020 – 2030) through the Ministry of Environment and Water (KASA) is leading the effort towards Sustainable Malaysia 2030. Through this plan, the government set a target to reduce the existing domestic water consumption rate to 180 l/c/d in 2025 and 160 l/c/d by 2030 (Ujang et al., 2021). The word of Allah SWT in Surah al-Baqarah verse 22 clearly shows that humans are responsible for preserving the environment because humans and nature are interdependent;

It is He Who has made the earth a resting place for you, and the sky a canopy, and sent down water from above wherewith He brought forth fruits for your sustenance. Do not, then, set up rivals to Allah when you know (the truth). (Quran 2:22)

Allah SWT has created this world with a variety of resources in it to be shared with fellow creatures and one of the resource is water. Water is the most important resource that is use every day for the continuation of life for all creatures on this earth. According to Nik Mahmood and Abu Talib (2022), the increasing number in human population will increase the water demand to fulfil our lives need. Based on this fact, the researcher has interest to highlight the subject of water along with the alternative solution to face the water crisis in this country.

3.1. Environmental sustainability

3.1.1. Green technology

According to Qamar et al. (2020), green technology is a technology that is environmentally friendly in its production, supply chain and usage. While World Intellectual Property Organization (WIPO) (2022) suggested that green technology are the sophisticated innovations that can offer possible solutions to a climate change challenges. According to Ujang (2019), '*green technology is synonymously linked with environmentally-friendly technology, eco-technology and clean technology*'. He added, there are three aspect that can be used to determine the 'greenness' of a technology. First, system which uses methods to produce eco-friendly products. Second, system which uses renewable resources and lastly, system which changes the production line and waste patterns that are not harmful to the ecosystem.

In Malaysia, the government had introduced various initiatives to mitigate the negative impacts to the environment. Since 2009, several initiatives taken have shown that green technology could be instrumental in decoupling economic growth from natural capital depletion and the government has introduced The Green Technology Master Plan 2017 – 2030 (GTMP). This master plan outlines the strategic plan for green technology development to create a low-carbon and resource efficient economy. This GTMP focuses on six key sectors that is energy, manufacturing, transportation, building, waste and water (Kementerian Tenaga, Teknologi Hijau dan Air, 2017).

One of the biggest challenges of the world faces right now is water scarcity. In preserving water sustainability, green technology plays a vital role to ensure every steps taken will not harm the environment. As the paper had stated earlier, Allah SWT has created this world with a variety of resources. Unfortunately, this natural resource is becoming barren. It has been treated greedily by some irresponsible people. The practice of green technology can be used as a method to preserve and conserve the environment, this can indirectly preserve the environment as a whole (Hassan et al., 2017). WIPO (2022) highlighted that innovation in water conservation and management including rainwater harvesting system is one of the green technology that can be applied to collect rainwater and act as a water supply during drought season.

3.1.2. Environmental sustainability according to Islam

Islam emphasizes the importance of preserving and conserving this nature on every human being in order to ensure the sustainability of life in this nature (Abdul Halim & Mat Akhir, 2016). A human being does not just need to maintain a good relationship with Allah SWT alone, but even with all creatures. Any form of tyranny will bring bad consequences especially for life in the afterlife (retribution). Cruelty to God (polytheism/syirik) is forbidden, as well as cruelty to other creatures whether against humans or flora and fauna (Ujang & Mohd Yusoff, 2020). Humans need to be aware of being fair to all, justice to His creatures is to preserve the right of nature to live together and avoid doing damage, pollution and destruction to it. Based on the words of Allah SWT in Surah al-A'raf verse 56;

And do not make mischief in the earth after it has been set in order, and call upon Him with fear and longing. Surely Allah's mercy is close to those who do good. (Quran 7:56)

In fact, the current situation is going opposite where today ecosystem has face threats and dangers. The destruction of the environment occurs due to human behaviour itself, as mentioned in the words of Allah SWT:

Evil has become rife on the land and at sea because of men's deeds, this in order that He may cause them to have a taste of some of their deeds; perhaps they will turn back (from evil). (Quran 30:41)

The preservation of nature is very much in line with the image of the faith to reduce damage and disasters on the face of the earth as a result of human greed itself. Therefore, the ability of people and the existing system to change to governance practices and lifestyles that are concerned with environmental sustainability will ensure that the five goals of sharia (maqasid sharia) can be fulfilled, namely, taking care of religion, taking care of the soul, taking care of reason, taking care of descendants and taking care of property (Ujang et al., 2021).

The nature of loving fellow creatures is the foundation of environmental preservation ethics and the core of sustainable development. Loving becomes the basis of ethics that makes Islam a comprehensive religion that has a view of life, philosophy, practice and attitude towards the preservation of the environment. Among the main ethical principles of environmental preservation according to Islam as outlined by Ujang and Mohd Yusoff (2020) are;

- i. Preservation of the environment for the well-being and goodness of the entire nature and ecosystem;
- ii. Help solve various problems and crises with sincere intentions for worshiping Allah SWT;
- iii. Helping, pleasing and praying for fellow creatures with a sense of love, empathy and responsibility for worshiping Allah SWT;
- iv. The practice of preserving the environment for the benefit of fellow creatures without distinguishing race, skin colour, nationality, type and species of creatures; and

- v. Preservation of the environment is a practice of charity that will be pleased and rewarded by Allah SWT.

According to Abdul Halim and Mat Akhir (2016), to preserve the environment, there are three important aspects that need to be taken into account. First, the purpose of the creation of man who plays an important role as an administrator and *prosperer* of nature. Second, the concept of '*al-mizan*' or balance, because every creation of Allah SWT is closely related to balance. Through this balance will create a harmonious and prosperous environment. Third, the destiny of Allah SWT. This destiny determines the role of humans on the face of the earth and the balance of nature. Both the first and second aspects are related to the destiny of Allah SWT.

3.2. Eco-Shift

3.2.1. Implementation of eco-shift towards environmental sustainability

... "Verily Allah does not change a people's condition unless they change their inner selves"...
(Quran 13:11)

Change according to this discussion is about encompassing the attitudes, habits, behaviours and cultural transformations towards an environmentally-friendly and sustainable development where taking actions by proper implementation is needed (Ujang, 2019). Based on the words of Allah SWT at verse 11th of surah ar-Ra'd indeed require a change and actions taken by the humankind. It is clear that humans are currently facing danger as a result of the destruction of the natural ecosystem and transformation steps need to be taken immediately to protect the survival of future generations (Ujang et al., 2021). Ujang (2019) added that Eco-shift means making radical changes that involves transformation in the way of thinking, decision-making, practices and lifestyle of an individual that could proactively contribute to environmental sustainability.

In making changes towards a better living to promise an environmental sustainability, the most important aspect is the human themselves. This is because human is the one who will run the changes and the responsibilities to protect this nature is their main duty in this world. But, here is the most challenging task occur which is to change people's lifestyle and mind-set. Through this Eco-shift approach, cultural transformation will result and it will progressively change the habits, behaviour and culture of the community to a permanent change that underlies the lifestyle of Malaysian people. This success is the yardstick for every individual change and not focused solely on the organization. It is through this Eco-shift framework that the governance system of the country and society can change comprehensively towards the preservation of the environment as shown in the figure 1 below.

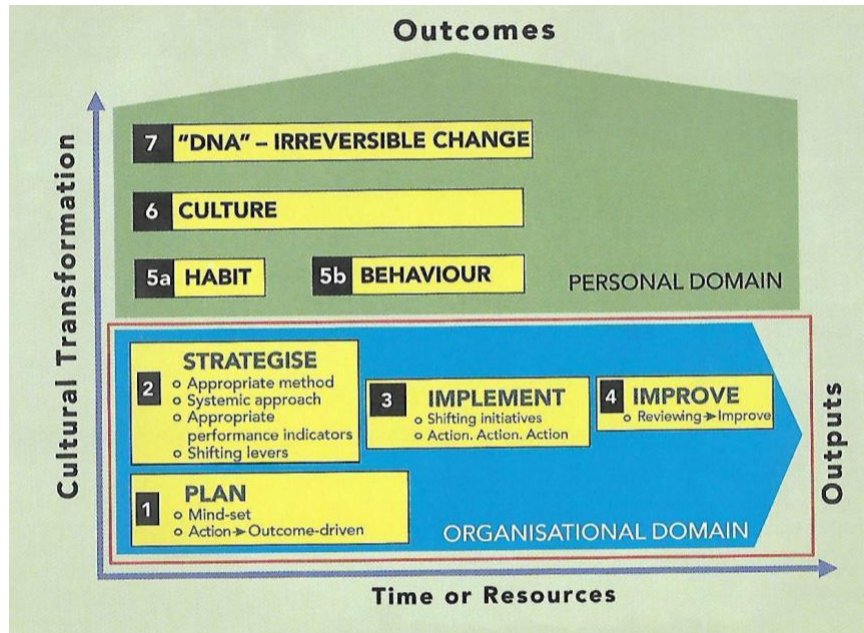


Figure 1. Eco-Shift Framework (Source: Ujang, 2019)

Based on the Eco-Shift framework, a society can change completely towards the preservation of the environment and this goes around individual by individual to form a society. Basically, Eco-shift has four stage. However, this four basic stages can be further expanded into the following nine steps that may create an irreversible transformative change towards environmental sustainability, as been explained in Table 1.

Table 1. Eco-shift Step

Eco-Shift Step	
Step 1	Changing the mind-set
	Changing the mind-set involves three points that need to be properly understood. First, understanding the big picture that relate to our philosophy of life. Second, understanding the mission in our career paths and life and last, understanding the tangible targets that we would like to achieve within a specific period of time.
Step 2	Prioritising actions to be outcome-driven
	Eco-shift is about transforming individuals and the entire community by changing their way of thinking, behaviours, habit and lifestyles. Prioritising is about knowing which action to be undertaken first in more efficient and productive manner. Outcomes in the context of Eco-shift are transformative changes in habits and culture towards achieving environmental sustainability.
Step 3	Using an appropriate methodology
	In short, the methodology for environmental sustainability can be divided into two major categories, encouraging the use of green technology and enhancing the green cover. Green technology is synonymously linked with environmentally-friendly technology, eco-technology and clean technology. In general, three criteria that can be used to determine the ‘greenness’ of a technology, first, system which uses methods to produce eco-friendly products, second, system which uses renewable resources and third, system which changes the production line and waste patterns that are not harmful to the ecosystem. Green cover acts as a carbon sink involves forestation, reforestation, urban greening and other green initiatives. Its main objective is to offset the emission of greenhouse gases as a result of human activities.

Step 4 Focusing on a systemic approach

To make a transformative change on a personal, local or national level. For example on a personal level, we should start by changing our lifestyle to be more eco-friendly. On bigger scale, the eco-friendly lifestyle escalates the circular economy (CE). CE refers to a regenerative system where utilisation of resources, system inefficiency and waste generation are to be minimised. The minimisation may be achieved by having a close-looped system, employing the use of eco-design consumer products which involves processes of reclaim, reuse, recycle, up-cycle and revalue of materials and services.

Step 5 Selecting the appropriate performance indicators

We have to be clear on the performance indicators involved in order for our initiatives to be considered accordingly at local, national and global levels. There are many indicators used to measure initiatives, programmes or policies related to environmental sustainability. For example Agenda 2030 and the SDGs.

Step 6 Adjusting the three shifting levers

There are three important levers to bring about change in many fields of life. First, regulatory framework; second, strong relationship and third, public participation. Regulatory framework includes processes, approvals, enactment of laws and implementation of the approved laws. Strong leadership covers leadership at various levels. A strong leadership drives relevant issues to be discussed, to progress further with its implementation, familiarisation and cultural acceptance. Public participation is a participative political practice and sometimes used interchangeably with stakeholder management. It also provides opportunity for the public to be involved in various initiatives including the decision-making that might affect them.

Step 7 Shifting initiatives

There are three basic shifting initiative that may be used to materialise the Eco-shift;

- i. Improved outcomes. Outcomes are changes that take place as a result of a set of activities. Improved outcomes mean enhancing changes in terms of its quantity and quality;
- ii. Big and bold measures. Big and bold measures focus on strategic and transformative changes that require strong political will, high commitment and various resources; and
- iii. Strong leadership to blend the initiatives. Strong leadership is needed to blend the improved outcomes with bold measures through various initiatives that will always be available for leaders to choose from and highly dependable on its leadership capability to choose and to move forward with the limited resources available.

Step 8 Action Action Action

Action is to be outcome-driven in Eco-shift. The 9 Eco-shift step will be outcome-driven by enhancing its cultural components such as habits, behaviours, cultures and irreversible changes. The formula of outcome consists of three elements, plan, event and perception. Plan in the context of Eco-shift includes changing the mind-set, prioritising actions, using an appropriate methodology, focusing on a systemic approach, selecting appropriate performance indicators, adjusting shifting levers and the shifting initiatives. Event is actions that need to be taken correctly and need continuous improvement. While, perceptions is the ability to observe or become aware of something and the way in which something is regarded, understood or interpreted.

Step 9 Reviewing for continuous improvement

Continuous improvements is important in moving forward in order to increase productivity, reduce inefficiency and achieve better outputs and enhanced outcomes. There are many tools for continuous improvement. Among the commonly used is a four-step quality model: plan-do-check-act (PDCA) or Deming Cycle. All this methods focusing on the culture of change, being objective-driven, involvement by all employees through teamwork, benchmarking and waste minimisation and time management.

Source: Quoted and modified from Ujang (2019)

3.3. Rain and rainwater harvesting

Rain is one form of precipitation that falls to the earth as one of the processes that completes the earth's water cycle (Mohd Sani & Rindam, 2011). In The Qur'an (2016), Allah SWT has explained several verses regarding the rain, among them through the Surah Al-A'raaf, verse 57;

And it is He Who sends forth winds as glad tidings in advance of His mercy, and when they have carried a heavy-laden cloud we drive it to a dead land, and then we send down rain from it and therewith bring forth fruits of every kind. In this manner do we raise the dead that you may take heed. (Quran 7:57)

As Muslims we believe that everything in this universe is a blessing from Allah SWT. Nothing happens in this world without the will of Allah SWT. Even the Prophet SAW, peace be upon him, even always appreciate the rain. From 'Aishah RA, that the Prophet SAW when He saw rain, He would pray: "Allahhuma syaibaan nafi'an" which means "Oh God, make this rain a rain that brings benefits as well as goodness" (Hadith narrated by Al-Bukhari, No. 1032).

According to National Geographic (2022), "rain is liquid precipitation where water falling from the sky. Raindrops fall to earth when clouds become saturated with water droplets as they gather in a cloud. When the water droplet becomes too heavy to continue floating around in the cloud, it falls to the ground". Joseph (2016) stated that rain is droplets of water that have condensed from water vapour in the atmosphere and then precipitated and fall under gravity owing to its weight, fall to earth as rain.

Rainwater harvesting is the process of collecting, storing and using rainwater for domestic use. According to Department of Irrigation and Drainage Malaysia (DID) (2012), rainwater harvesting is a technique of collecting rainfall as a supplementary source of water supply for households, commercial and industrial premises, landscape watering, livestock water and irrigation of agriculture. Besides that, Medina (2016), stated that rainwater harvesting is a process of precipitation that falls on a site that is diverted, captured and stored for use on-site, as opposed to allowing it to run off, evaporate or infiltrate into the soil. Other than that, rainwater harvesting also can be defined as the collection and storage of rainwater for use rather than to waste it as runoff (Hafizi Md Lani et al., 2018). Human beings used almost all water derives from rainfall. Since it is not a new idea, rainwater harvesting has been used since ancient times as rainwater harvesting was an important method to obtain water (Lee & Kim, 2012). According to Fewkes (2012), rainwater harvesting is the process of collecting rain from the roof of a building and is used for external domestic use such as toilet flushing and watering trees which is one of the simple methods to face the increment in public water demand.

3.4. Rainwater harvesting system (RWHS)

Rainwater harvesting has been practiced in traditional way ages ago in Malaysia where crock or 'tempayan' was been used to collect rainwater (Koh, 2016). The traditional method of rainwater harvesting has no any filtration system and the stored rainwater was directly been used for everyday routine including cooking, bathing and watering plants. This method has led to the modern system of

harvesting rainwater where it has more systematic way by having filtration components that trap sand and dirt in order to purify the water. Recently, there are growing needs for additional filtration so that collected rainwater can be turn into drinking water.

Modern lifestyle have changed the way clean water is used in the community. The increase in water demand has prompted the government to introduce the method of rainwater harvesting as an alternative source of water supply that focuses on environmentally friendly concepts and sustainable green technology. Generally, rainwater harvesting system is the direct collection of rainwater from roofs and other purpose built catchment (Shaari et al., 2008). Rainwater harvesting has been used to provide a potable and non-potable source of water globally (Mohd Zamri & Rahmat, 2021).

In Malaysia, NAHRIM has conducted a study on "TuaiHujan" (previously known as Sistem Penuaian Air Hujan, SPAH) in the context of rainwater as an alternative water source because "TuaiHujan" has more potential and advantages for the community. Through research, development, innovation and commercialization of "TuaiHujan" it can reduce dependency on treated water, overcome the problem of flash floods and can maintain ecosystems and environmental sustainability (Ujang et al., 2021).

A typical rainwater harvesting system should have six main elements, namely, catchment surface, gutter and downpipe, dirt filter, storage tank, water distribution and treatment system (Shaari et al., 2008) as shown in Figure 2. This systematic system of harvesting rain comes along with the specific cost that need to be allocate for the implementation. According to Mohd Zamri and Rahmat (2021), the installation cost of this system on the market relatively high depending on the size and the complexity of the system.

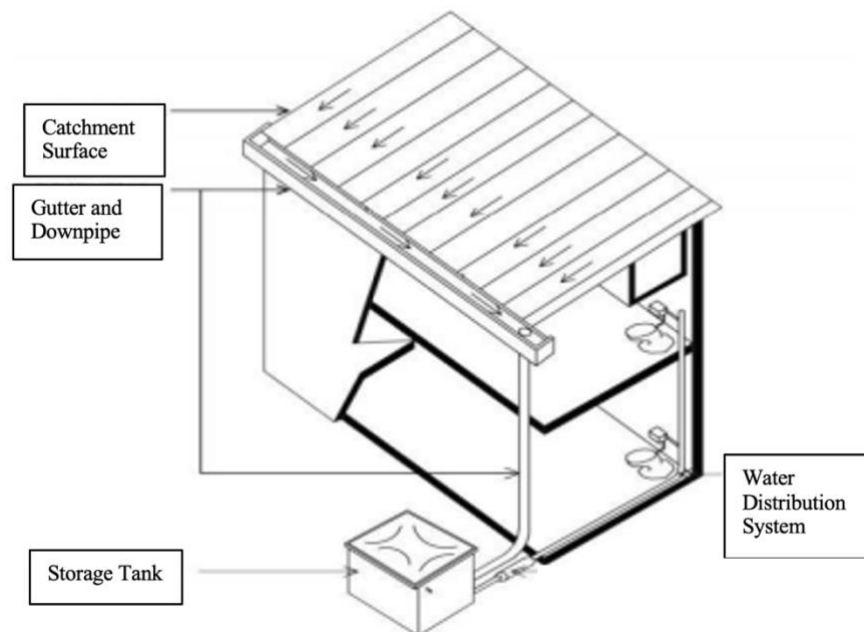


Figure 2. Rainwater Harvesting System (Source: Sudarmo et al., 2021)

When rainwater is harvested for consumer use, it will reduce our dependence on the existing clean water supply system. The method of rain harvesting can be considered as a green product that supports

the idea and concept of ecological modernization. In fact, it is also in line with the implementation of green buildings in Malaysia with the goal of efficient water use in buildings.

4. Discussion

In moving towards sustainable development to achieve environmental sustainability through the implementation of green technology based on the conducts of Islamic principles, the concept of Eco-shift need to be implemented. The existence of green technology is believed to be a foundation for environmental sustainability. Islam calls on people to take care of the environment and green technology can be one of the efforts to realize it (Hassan et al., 2017).

As mentioned earlier, Eco-shift has seven levels to achieve its outcome and nine steps to achieve its outputs. In order to develop the practice of harvesting the rainwater, we should be able to complete all the steps. In the context of the green technology and sustainability, rainwater harvesting will help in reduce dependence on domestic water supply and as an alternative source to overcome the problem of water shortage where at the same time the role of being a Muslim can be fulfilled by maximizing the benefits of rainwater. As we all know, the practice of collecting rainwater has been practiced by the community since the time of the ancestors for daily use. In the past, rainwater was collected using buckets, jars, and wells. But now, with the passage of time and technological changes, more systematic rainwater harvesting makes this system more safe and user-friendly.

4.1. The case study of Desa KEDA Hujung Keton, Pendang, Kedah Darul Aman

A study has been conducted in August 2022 at Desa KEDA Hujung Keton, Pendang, Kedah Darul Aman regarding the rainwater harvesting practice. Based on the survey and observation from 107 houses at the location, only 97 heads of households are reachable. The respondents are been categorized into two groups; one group of respondents are those who knew that rainwater can be collected and use it in daily life, while the second group of respondents are those who knew that rainwater can be collected but did not use it in daily life. Based on Table 2, out of 97 respondents, 82 respondents were categorized under Group 1 where they were already collected rainwater through traditional method by using basin or pail which is 42 respondents and by using tank which recorded 40 respondents. Whereas the other 15 respondents were categorized under Group 2 where they were not ready to collect and use rainwater in their daily lives.

Table 2. Data of Desa KEDA Hujung Keton

Group	Awareness on rainwater harvesting	Total of respondents	Rainwater collection method	
1	Yes	82	Basin/ Pail	42
			Tank	40
2	No	15	-	
Total of respondents		97		

This settlement has experienced problems with water supply disruptions since the beginning of the settlement in 2005. The location of the settlement located in a hilly area causes the water pressure to be very slow. According to Mr. Ruslan Bin Hassan (Figure 3), the village headman of Desa KEDA Hujung

Keton, usually the water pressure stabilizes early in the morning which is around one to two o' clock in the early morning. At that time, the villagers will collect water into water barrels in each house to be used when there is no water during the daytime. Besides that, the Kedah state water supplier, Syarikat Air Darul Aman (SADA), will send water supply trucks to distribute to residents in the event of a water supply disruption during the night time for the next day use.

Most of the houses at Desa KEDA Hujung Keton residents who also provide water barrels (*tong air biru*) placed under trees and also barrels that collects rainwater from the roof that flows into the gutter. This shows that the concern in practicing the method of rainwater harvesting is deeply rooted in them. Although the harvesting method does not use an organized system as outlined by the government, this situation is very encouraging and bring new hope to the rainwater harvesting system in the future. While the researchers was conducting the study, the villagers really hoped that there would be government or private parties that could provide a systematic rainwater harvesting system facilities in their community hall or prayer hall at the village so that it could be used by all the residents during water scarcity. In addition, the village committee (*4P Desa KEDA*) took the initiative to collect money on a monthly basis to buy water tanks to be placed in each house of residents who do not have water tanks yet. This water tank initiative aims to enable villagers to collect water in larger quantities when SADA delivers water and also during rainy day.



Figure 3. Researcher with Mr. Ruslan and the Resident of Desa KEDA Hujung Keton

Rainwater sources are an alternative source for the treated water sources and should be fully utilized to overcome the water supply problem in the Desa KEDA Hujung Keton area or in general also in other areas that experience increased demand for treated water sources. Overall, based on the observation,

it shows that the residents' knowledge of rainwater harvesting is encouraging, even though not all residents use or collect rainwater. Further programs on creating the awareness about the benefits of harvesting rainwater can be introduced more in the future so that people would know that the rainwater must be fully utilized by the community for various domestic uses such as washing floors, washing vehicles, watering trees and flushing toilets. In addition, if rainwater harvesting is treated using the right method, it can be used as a source of drinking water or for cooking purposes.

4.1.1. Eco-shift and environmental sustainability

The most popular hadith on environmental sustainability stated that, "The earth is green and beautiful and Allah has appointed you his stewards over it" (Hadith narrated by Muslim), which reiterates that human beings have been given the responsibility of guardianship over the natural environment (Zafar, 2021). As explained before, green technology is in line with the Islamic image that calls on people to care for and preserve the environment. The existence of green technology can help improve the quality and glory of Islamic civilization. In addition, improving the quality of life based on Islamic principles and the implementation of green technology contributes to environmental sustainability (Hassan et al., 2017).

As mentioned by Ujang (2019), Eco-shift is about the future. Eco-shift is also an adjustable framework that provides the basic understanding and methodology to comply with various environmental regulations and to be proactive in achieving the Sustainable Development Goals (SDG), as well as to culturally be able to transform a nation towards green lifestyle, a circular economy while enhancing the public well-being (Ujang, 2019). As we can see in figure 1, through the Eco-shift framework it allows a society to change completely towards environmental sustainability. This Eco-shift framework is also supported by Eco-habit, this is because habits and behaviours form the culture of a society. That is why Muslims need to express this understanding by living the style and way of life of Islam that is inclusive and sustainable (Ujang & Mohd Yusoff, 2020).

Eco-shift initiatives may be able to impact someone's personal life and lifestyle. As it promotes good habits such as practising a lean and green lifestyle, as well as changing the mind-set, way of thinking and working to be more productive and efficient. Continuous improvement will lead to quality of the acquired new habits (Ujang, 2019). Similar to habits, behavioural change requires involvement, collaboration and empowerment. Behaviour is the way in which one acts or conducts consciously, especially towards others based on a set of values and principles or standards (Ujang, 2019). As have been mentioned earlier, Eco-shift aims at cultural transformation towards environmental sustainability or green culture where it is important that the culture in which Eco-shift is promoting should be outcome-driven.

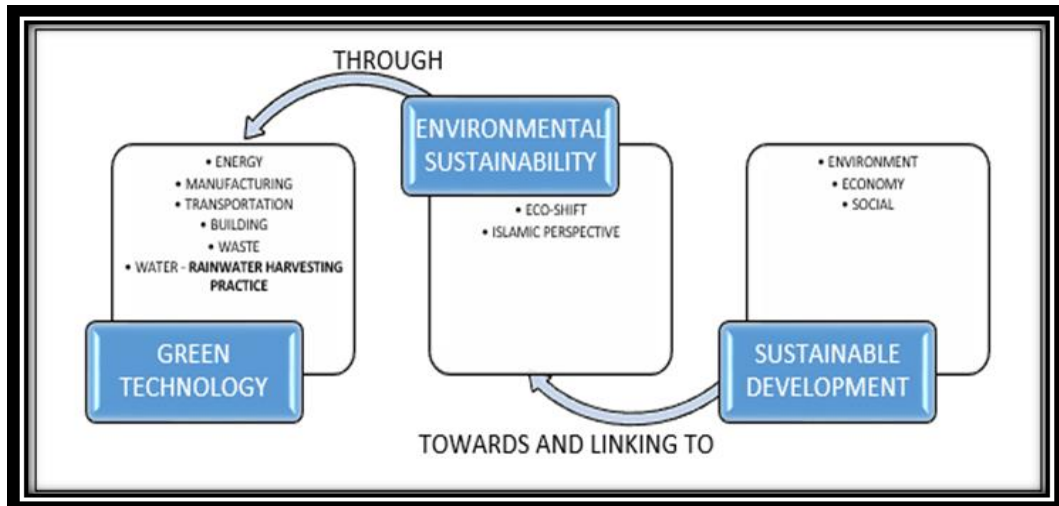


Figure 4. Eco-shift and Islamic Perspective towards Environmental Sustainability

This paper is a new expansion of the subject on sustainable development (Figure 4) where the previous studies and existing literature had focus on it in general. The researcher narrowed down the subject of environmental sustainability through the previous recommended concept of Eco-shift and Islamic teachings by focusing on the aspect of rainwater harvesting system practice.

5. Conclusion

The trust to preserve the environment is a human responsibility. This effort requires determination and the will in each individual to implement change. Through the words of Allah SWT in Surah Saba' verse 15: "... *Most pleasant is your land and Most Forgiving is your Lord*" proves the responsibility and role of humans in preserving the environment as a caliph on this earth. As human being and a caliph of the Lord, harmless steps need to be taken to solve any crisis or issues that occur in the environment to achieve the future sustainability. The natural gift of rain can be harvested through the systematic green technology as an alternative sources for water demand. The environment and water are essential elements that underlie the life of every creature. In the context of rainwater as an alternative water source, it cannot be denied that rainwater has many potentials and advantages for the environment and society. As we already know, this can help to reduce dependence on treated water and overcome the problem of flash floods, especially in cities that are saturated.

Preserving the environment is an act of worship and is demanded in Islam and in line with the concept of Eco-shift. Through this approach, cultural transformation will be achieved and it will progressively change the habits, behaviour and culture of the community to permanent changes that underlie the lifestyle of Malaysians. Through the Eco-shift framework, 'outcome' is made as the main goal because it involves a comprehensive change towards the preservation of the environment. The researcher conclude that the suggestion of the Eco-shift concept is go along and moving in the same direction with what Islam teaches to achieve environmental sustainability. However, for the future research, the researcher suggest a study that will focus more on the readiness among community in Malaysia in using rainwater for routine activities such as cooking, drinking and bathing through the systematic RWHS. The result for this future study will create a strong connection why human being need to maximize the gift of

rain and the urge to push forward the implementation of RWHS at every area to achieve the Agenda 2030 in our country.

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