

**EXAMINING WOMEN LEADERS' FORTE IN
LOCALIZING THE SUSTAINABLE DEVELOPMENT
GOALS IN MALAYSIA**

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**FACULTY OF SCIENCE
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KUALA LUMPUR**

2018

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LOCALIZING THE SUSTAINABLE DEVELOPMENT
GOALS IN MALAYSIA**

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**DISSERTATION SUBMITTED IN
FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE**

**DEPARTMENT OF SCIENCE AND TECHNOLOGY
STUDIES
FACULTY OF SCIENCE
UNIVERSITY OF MALAYA
KUALA LUMPUR**

2018

UNIVERSITY OF MALAYA
ORIGINAL LITERARY WORK DECLARATION

Name of Candidate: SHAHNAZ BINTI SHAHIZAN

Matric No: SGQ140003

Name of Degree: MASTER OF SCIENCE (SCIENCE PHILOSOPHY)

Title of Project Paper/Research Report/Dissertation/Thesis ("this Work"):

EXAMINING WOMEN LEADERS' FORTE IN LOCALIZING THE
SUSTAINABLE DEVELOPMENT GOALS IN MALAYSIA.

Field of Study: POLICY AND MANAGEMENT OF SCIENCE AND
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EXAMINING WOMEN LEADERS' FORTE IN LOCALIZING THE SUSTAINABLE DEVELOPMENT GOALS IN MALAYSIA

ABSTRACT

Malaysian women leaders have great potential to successfully implement the United Nations (UN) Sustainable Development Goals (SDG) in the country. This research aims to study the strengths that the women leaders have by investigating the relationship of variables in the localization of the SDG. The challenges faced by women leaders are expected to be substantial, such as leadership qualities needed to assure stimulation of sustainable development and inequality in the power dynamics. The researcher distributed questionnaires to 628 women leaders at the grassroots level in Malaysia. The survey includes leadership characteristics, organizational status, and gender awareness. The researcher gathered information on Malaysian leaders from the United Nations Development Programme (UNDP) in Malaysia, Ministries, and various agencies. Findings suggest that the women leaders are aware of the SDG and the relationship between the three primary variables are insignificant, and the linear regression model, seemed to be able to predict a correlation between interest in the implementation of SDG with three most significant predictors which are leadership traits, SDG activities previously implemented, and the level of gender awareness. Further research is suggested to reveal a workable universal model with more relevant variables that could be emulated by other organizations and countries. Malaysian women leaders may have a chance to pioneer a successful localization of the SDG at the grassroots level and lead the nation to be a prosperous and developed nation, recognized worldwide.

Keywords: gender, leadership, grassroots, sustainable development goals, science and technology

MENGENAL KELEBIHAN PEMIMPIN WANITA MELOKALISASIKAN MATLAMAT PEMBANGUNAN MAMPAH (SDG) DI MALAYSIA

ABSTRAK

Pemimpin wanita Malaysia berpotensi tinggi untuk melaksanakan dengan jayanya Matlamat Pembangunan Mampan (SDG) dari Pertubuhan Bangsa-Bangsa Bersatu (PBB) di negara ini. Kajian ini bertujuan untuk mengenal kekuatan yang dimiliki oleh pemimpin wanita dengan menyiasat perhubungan antara pemboleh-ubah dalam pelaksanaan SDG. Cabaran seperti kualiti kepimpinan yang diperlukan untuk menjamin rangsangan pembangunan mampan, serta ketidaksempurnaan dalam dinamik kuasa, yang dihadapi oleh pemimpin wanita dijangka adalah faktor yang sangat penting sekiranya SDG akan dilaksanakan di negara ini. Soal selidik kuantitatif telah diedarkan kepada 628 pemimpin wanita di peringkat akar umbi di Malaysia. Kajian ini termasuk ciri kepimpinan, status organisasi dan kesedaran jantina. Data berkenaan pemimpin akar umbi Malaysia dikumpul dari Program Pembangunan PBB (UNDP) di Malaysia, serta pelbagai Kementerian dan Agensi. Penemuan menunjukkan bahawa pemimpin wanita peka dengan Matlamat Pembangunan Mampan, hubungan antara ketiga-tiga pemboleh-ubah utama adalah tidak signifikan, dan model regresi linear, dapat meramalkan korelasi antara minat untuk melaksanakan SDG dengan tiga peramal utama iaitu ciri kepimpinan, aktiviti SDG yang pernah dilaksanakan, dan tahap kesedaran jantina. Kajian lanjutan dicadangkan untuk memperolehi model sejagat yang boleh diguna pakai dengan pemboleh-ubah lain dan boleh diaplikasikan dalam organisasi dan negara lain. Pemimpin wanita Malaysia akan berpeluang mempelopori pelaksanaan SDG di peringkat akar umbi dan memimpin negara menjadi sebuah negara yang makmur dan maju, diiktiraf di seluruh dunia.

Kata Kunci: gender, kepimpinan, akar umbi, matlamat pembangunan mampan, sains dan teknologi

ACKNOWLEDGEMENTS

I would like to first, and foremost, express gratitude to my supervisor Dr Suzana Ariff Azizan, and former supervisor, Professor Dr Siti Nurani Mohd Noor for their ever-patient support, optimistic outlooks, keen insights and resilient motivation, all of which are the cornerstones of my success in completing my Masters.

A debt of gratitude for the people who passionately assisted in my research, especially Aiza Yuslinda Yusof, batch mates of the OneZeroFivers, Redhauddin Kamaruzzaman, Aisyah Norodin and Sri Hartini Shamsudin, officers from the UNDP Malaysia, Department of Women Development, and all of the department's State Directors, Ministry of Rural and Regional Development's officers.

Finally, I am eternally grateful to my husband, Raja Khuzairie Azaham, for his love, constant support, inspiration and unyielding strength. My utmost appreciation to my mother, Rihaan and father, Shahizan for their endless encouragement. Special thank you, to my wonderful children, Raja Arman Shah, Raja Aliya Sarah, Raja Ashman Shah and Raja Ayra Safya, for behaving wonderfully and giving all the hugs and kisses for mommy when it was needed the most.

Thank you very much.

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LIST OF ABBREVIATIONS

AADK	Agensi Anti Dadah Kebangsaan
ANOVA	Analysis of Variance
ASEAN	Association of Southeast Asian Nations
DOSM	Department of Statistics Malaysia
DWD	Department of Women's Development
GDP	Gross domestic product
ICT	Information and communications technology
JKKK	Jawatankuasa Kemajuan dan Keselamatan Kampung
JKKKP	Jawatankuasa Kemajuan dan Keselamatan Kampung Persekutuan
LPP	Lembaga Pertubuhan Peladang
MDG	Millennium Development Goals
MESTECC	Ministry of Energy, Science, Technology, Environment and Climate Change
MOSTI	Ministry of Science, Technology and Innovation
MPWK	Majlis Perwakilan Wanita dan Keluarga
MRRD	Ministry of Rural and Regional Development
MWFCD	Ministry of Women, Family and Community Development
NBOS	National Blue Ocean Strategies
NGO	Non-Governmental Organizations
NPSTI	National Policy on Science Technology and Innovation
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PBB	Pertubuhan Bangsa-Bangsa Bersatu
PERWANI	Perkumpulan Wanita
PWD	Persons with Disabilities

R.o.I.	Return on Investment
SCP	Sustainable consumption and production
SDG	Sustainable Development Goals
SEA	South East Asia
SME	Small Medium Enterprises
STEM	Science, Technology, Engineering and Mathematics
STI	Science, Technology and Innovation
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UM	University of Malaya
UMNO	United Malays National Organization
UN	United Nation
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNSC	United Nations Statistical Commission
WHO	World Health Organization

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CHAPTER 1: INTRODUCTION

The year 2016 brought great pride, anticipation and hope to nations of the world, triggered by the successful implementation of the United Nations' (UN) Millennium Development Goals (MDG), and the potentially positive global impact of the Sustainable Development Goals (SDG).

Globally, some of the MDG's major achievements include the level of extreme poverty has decreased by more than half worldwide, from 1.9 billion people (1990) to 836 million people (2015), and the amount of primary school aged, out-of-school children has fallen from 100 million children in 2000 to 57 million children in 2015. Women's representation in the parliament have also increased as much as 90% from 174 countries, and children's mortality (below the age of five years old) has significantly reduced to almost 6 million (2015) worldwide from the massive number of 12.7 million in 1990. (United Nations Department of Economic and Social Affairs, 2015).

Malaysia has also had successes in the MDG implementation nationwide as the country achieved most of the targets and the people of the nation gained positive impacts because of the developments of the MDGs (Economic Planning Unit, 2015). The primary targets achieved are the zero percentage of hard-core poverty, almost 100 per cent of primary and secondary education completion, and the achievement of the goals of MDG 3, which is promoting gender equality and empowering women. Malaysian girls have outnumbered boys at secondary and tertiary education levels for more than ten years, while the literacy rate in 2013 for boys aged 15 and above was 96.1 per cent, compared to girls at 92.1 per cent. The female Labour Force Participation Rate (LFPR) was still lower than the male LFPR in 2014. However, the female-male ratio increased to 0.67 in 2014, compared to 0.57 in 2000 (Economic Planning Unit, 2015). In health-related issues, Malaysia has achieved reduced infant and below-five mortality rates, to 6.2 and 7.6 per 1,000 live

births, respectively; have a low mortality rate, a significant increase in the percentage of safe deliveries and antenatal coverage. The country has successfully halted and reversed the spread of HIV/AIDS, achieved the highest decline in malaria cases in all of Asia and the Pacific, implemented necessary actions towards environmental sustainability and became a dynamic source to the international partnership for development (Economic Planning Unit, 2015).

Moving forward, Malaysia continues proactively to solve lingering issues and to embrace the SDG which will target a broader ranged perspective of development issues. The government is of the opinion that the country is already on the right track in achieving the SDGs (United Nations Development Programme, 2016). In his speech during a symposium entitled Operationalizing The 2030 Agenda for Sustainable Development, YB Senator Dato' Sri Abdul Wahid Omar, Minister in the Prime Minister's Department highlighted that:

The current five-year development plan, the Eleventh Malaysia Plan 2016-2020, formulated with People as the centrepiece of all development efforts, in many aspects mirrors the multidimensional nature of the SDGs, and it will serve as an overarching and guiding policy for sustainable development in this country. (Economic Planning Unit, 2016, p. 1)

Meanwhile, women hold many leadership roles in communities globally. As observed in the World Survey in the Role of Women in Development 2014, women leaders' wisdom, innovation, accomplishment, and support is essential to search, and create more economically, socially and ecologically sustainable methods in managing local environments. The significance of these roles can be seen in communities' adaptive involvement in climate change, governing of resources, and other sustainable development projects worldwide (UN Women, 2014).

In Malaysia, women's participation in leadership roles has improved throughout the years, as seen in improvements of the Global Gender Gap Index (World Economic Forum, 2016) of scoring of 0.666 in 2016, from a score of 0.651 in 2006. Other significant improvements include economic participation, with a score of 0.658 in 2016, and Educational Attainment with a score of 0.985 in 2016. The research delved into an analysis of Malaysian women local leaders' roles in the country from various government sources (Ministry of Rural and Regional Development, 2016; Ministry of Women Family and Community Development, 2015). Other than organizations created specifically for women, such as a women's political wing, or a women's division in an organization, Malaysian women leaders', are typically assigned to the usual feminine roles. These typical roles include Secretary, Treasurer, Welfare Officer or Women's Well-being Unit. This designation implies an inaccurate utilization of a very substantial and valuable human resource.

Malaysian women leaders' potential is limitless, particularly involving the localization of United Nations' (UN) Sustainable Development Goals (SDG). Localizing the SDG means studying, understanding, and adapting the goals to suit the needs of a community accordingly (United Cities and Local Governments, 2015). Every community is different with diverse needs and wants; however, there are pre-determined requirements that are outlined by the UN on how to adapt the SDG to different situations. For this country, the UNDP Malaysia plays the most prominent role in this, with the assistance of various Ministries and agencies such as the Ministry of Rural and Regional Development and the local authorities, Non-Governmental Organizations (NGO), private companies, academic institutions, and individuals (United Nations Development Programme, 2017). However, in ensuring that everyone plays their part, the Malaysian women leaders at the grassroots level are the best examples to showcase the ability to ensure success in the localization of the SDG.

There is value for exploration towards the leaders' awareness of SDG and other advantages these women may have, as they already have their community's welfare and development in mind. Thus, the main objective of this research is to show the women's forte, their awareness, commitment and challenges in localizing the SDG. This study aims to verify the following claims:

- The Malaysian women grassroots leaders are aware of the SDG. They showed interest that matches the needs of their locality establishing that they understand and will be able to apply the SDG locally;
- The leaders demonstrated high commitment towards the localization of SDG evidenced in their previously implemented programs which are in line with the targets of UN SDG;
- Identifying various challenges in ensuring the implementation of the goals.

Analyses done in identifying the challenges include:

- There may be a correlation between leadership qualities of the women leaders and the interest to implement the SDG. Interestingly, the result is that there is no significant correlation between the two variables, even though, leadership qualities are essential when facing adaptive challenges (Heifetz & Laurie, 1997) hence the expectation that it has a profound effect on the interest in SDG implementation. However, the relationship is not significant; and
- There may be a correlation between the perception of existing power dynamics and the interest to implement the SDG. It is quite fascinating to see the non-correlation of power dynamics to the interest in SDG implementation as Havet's (2003) conclusion considering that the impact of women's dynamic of power affect not only other women and children but also the local community and the increased development of a nation in the long run (Havet, 2003).

Other prominent factors affect the successful localization of the SDG. We have identified three of the most prominent elements that may have the strongest correlation to the interest in SDG implementation by using the chi-square analysis, Pareto analysis, and the Analysis of Variance (ANOVA). These factors have significant potential to be used in profiling candidates that will successfully localize SDG worldwide.

This research utilized a survey conducted nationwide to Malaysian women leaders at the grassroots level. The objective is to investigate the existence of awareness and commitment of Malaysian women grassroots leaders in the localization of the SDGs. The researcher collected data from various government agencies, such as the Department of Women's Development and the local authorities, and private organizations such as the Spatialworks Sdn. Bhd., and Scienotech in Putrajaya, which have women leaders in their management teams alongside the implementation of a survey for the specific target group.

1.1 Field of Research

This research explores various fields that connect Malaysian women's strengths and abilities with the successful implementation of the UN SDG.

The research then studies the women's awareness and commitment of SDG, along with the existence of gendered power dynamics, and how it may affect the successful localization of the various sectors within the SDG. The application of science and technology is explored to see their effect on the adaptation of SDG.

1.2 Problem Statement

Malaysia's positive outlook on the MDGs keeps the country on the right track to achieve the SDGs. However, leadership at each level of the country's community needs to be strengthened (Clark, 2016) as what is required in most states to ensure the successful implementation of the SDG. There are three most important needs that Malaysia's leaders

must fulfil, and this includes, finding the financial assistance to implement the localization of SDG; get the leadership involvements of bodies such as the civil society, local government and private agencies; and lastly, leadership must be from a multidimensional system, which will ensure inclusivity at all levels of the community.

There is a specific target for the equality of gender and girls' and women's empowerment, which is the goal no. 5 of the UN SDG, however, a call has been made to all the member states to guarantee that women are fully involved in the achievement of all the SDG (UN Women, 2015). Therefore, Malaysian women leaders should be proactive in understanding the SDG and use the SDG in the development of their niche areas. To fully utilize SDG for the nation's development, it would be wise to explore and take advantage of the existing structure of women in various leadership grassroots positions in Malaysia such as the head of the village, secretary, or in women bureaus.

Henceforth, women leadership at the grassroots level is suitable to ensure this inclusivity and to provide the needs that a leader must fulfil, as will be further elaborated in the Discussions section of this research. Other than the existence of knowledge of the UN SDG and the presence of commitment as shown by their actions, the women leaders' position and unique ability to understand the needs of their community are what makes them especially suitable to ensure the inclusivity of the society while localizing the SDG. This study is on the relationship between women leadership roles in Malaysia and the achievement of the SDG in the country.

There is a need to exhaustively consider the Malaysian women leaders' roles in understanding the importance of SDG, and how it forms the basis of their actions and community development agendas.

1.3 Research Questions

The research questions that drive this study are as follows:

- Are the Malaysian women grassroots leaders aware of the SDG Goals?
- Is the women leaders' commitment towards SDG Goals reflected in their actions?
and
- What are the challenges that the women leaders face in implementing the goals?

1.4 Research Objectives

The objectives of this research are:

- To identify the Malaysian women grassroots leaders' existing interest in the SDG, which correlates with their awareness of the goals;
- To identify SDG related activities previously implemented by the women leaders, which links to their commitment to the goals; and
- To examine the challenges faced by the women leaders in implementing the SDG.

1.5 Topic of Research

Established upon the research questions highlighted, the subject of this research is Examining Women Leaders' Forte in Localizing the Sustainable Development Goals in Malaysia.

1.6 The Rationale for the Study

Malaysia needs to step up our efforts by ensuring that everyone plays his or her parts in localizing the SDGs. From the government, and civil societies, to the private sector, and individuals, will need to work together, to achieve active co-operation to realize the SDG nationwide (Economic Planning Unit, 2015). Hence the highlight of this research,

which is considering the Malaysian women leaders' roles at the grassroots level in ensuring the successful localization of the SDG.

By examining the women leaders' roles, this study closes the gap in inequality research that has previously been dominated by economic dimensions, rather than considering social, political, spatial, environmental, cultural, or knowledge-based factors (ISSC, IDS & UNESCO, 2016). In answering the research questions, we analyse multiple dimensions of inequality, specifically those that may affect the implementation of the SDG, how the elements affect each other and how the relationships affect the application of SDG locally and globally.

This study signifies a critical need to assess Malaysian women leaders' forte to see if they have the suitable qualities needed to change the power dynamics of gender leadership at the grassroots level in the country. They are expected to successfully implement SDG at the local arena, which will then ensure that Malaysia is on the right track with the UN SDG.

1.7 Significance and Potential Value of the Study

Reaching the objectives set will show the potential of Malaysian Women Leaders to achieve targets set by any government or organization. The key findings will demonstrate the current awareness of SDG and the shown commitment to it, based on the SDG related activities previously implemented. Coupled with further research on the leaders' obstacles and weaknesses, we can use this knowledge to understand how to create a solution where everyone benefits, to achieve a unified target for the development of the organization or nation. These findings will also be significant for other countries to adapt and emulate.

The originality of this study lies in the holistic view of the SDG where all the 17 goals are analyzed concurrently. This methodology of analyzing all the goals at the same time will allow researchers to view a more macro point of view towards which goal that may

need prioritization in any set of groups, compared to the others. It also ties in with the significance of the status of the state the country is in now, where concerns are high on some areas, but the focus is less upon the others.

The potential value of the findings involves any agency, organization, countries or individuals as its usage is varied and limitless. With the recognition of the awareness and commitment of SDG that greatly assist in the adaptation of SDG in Malaysia's community, Researcher, NGOs or Government bodies can identify other individuals that may have the same characteristics or forte, thus, a connection of the suitability of the candidate to pioneer localization of SDG in their organization.

With the exploration of factors or strengths for potential leaders to excel in sustainable development, Malaysia can move ahead of other countries in successfully adapting the SDG nationwide, and to be prepared for future targets. A well-developed collection of leaders who are aware and committed to the SDG, which may be identified using a baseline, and further trained, will surely propel the country to be ready for any future needs that may arise, especially those involving sustainable development.

Another significance of the study revolves around the targeted group chosen, which is the grassroots women leaders. In line with the United Nation's call for all women to play their roles in localizing the SDG worldwide, this study answers to that call and is useful and adaptable in other countries, in particular, the developing nations.

As for the Malaysian women leaders themselves, findings are expected to show their capability, and that these qualities are suitable not only for the adaptation of the SDG but also means that they are ready to be challenged and take on more responsibilities as a local leader. The government and organizations should take advantage of this and create various co-operations with them. Organizations should not miss this opportunity.

This study is a systematic empirical investigation of the awareness and commitment of the Malaysian women grassroots leaders towards the UN SDG via statistical

techniques. This applied science, to adopt new cultures of sustainable development into the society, there must be proper technological use, such as the utilization of social media and the latest telecommunications gadgets. The application of science is an excellent potential for the advancement of science, technology, and the community.

1.8 Definition of Key Terms

A few key terms highlighted in this research are relevant to understanding and critically assessing the research analysis and findings. The critical terms highlighted include grassroots level, Malaysian grassroots women leaders, power dynamics, sustainable development, UN's Sustainable Development Goals, awareness of the SDG and commitment towards the SDG.

1.8.1 Grassroots Level

The term grassroots used in this study refers to the local level of the community where work (such as socio-economic programs) runs on the ground. Places relating to grassroots include villages, neighbourhoods, and areas in districts, towns, and cities. As the research covers both rural and urban areas, communities within urban localities are also included, such as Putrajaya or Kuala Lumpur communities.

1.8.2 Malaysian Grassroots Women Leaders

For this research Malaysian women leaders are defined by those who are female adults (18 years and older) holding positions as leaders in their locality. Other leaders elected some of them in the same or different location, or they are among the chosen by a community or an organization.

1.8.3 Power Dynamics

This research delves into the perception of power dynamics, where the women leaders state the differences in the power of their voices and actions within their community. Their opinion will reflect upon the actions that they have taken, or what steps they plan or want to take, to make a sustainable change in their society.

1.8.4 Sustainable Development

Sustainable development studied in this research is centred on the UN SDG overarching definition of sustainable development that needs to be localized. The differences and similarities between Malaysia's existing sustainable development activities by the local women leaders and the UN SDG are compared with and analysed according to the society's activities.

1.8.5 United Nations' Sustainable Development Goals

The SDG consists of 17 sustainable development goals and 169 targets aimed by the end of the year 2030 (United Nations, 2015). The 17 different goals are:

- i. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels (also known as, or a.k.a. "Decent Work & Economic Growth");
- ii. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (a.k.a. "Industry, Innovation & Infrastructure");
- iii. Make cities and human settlements inclusive, safe, resilient and sustainable (a.k.a. "Sustainable Cities & Communities");
- iv. Strengthen the means of implementation and revitalize the global partnership for sustainable development (a.k.a. "Partnerships for Sustainable Development");
- v. End poverty in all its forms everywhere (a.k.a. "No Poverty");

- vi. End hunger achieve food security and improved nutrition, and promote sustainable agriculture (a.k.a. “Zero Hunger”);
- vii. Ensure healthy lives and promote well-being for all of all ages (a.k.a. “Good Health & Well-Being”);
- viii. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all (a.k.a. “Quality Education”);
- ix. Achieve gender equality and empower all women and girls (a.k.a. “Gender Equality”);
- x. Ensure the availability and sustainable management of water and sanitation for all (a.k.a. “Clean water & Sanitation”);
- xi. Ensure access to affordable, reliable, sustainable, and modern energy for all (a.k.a. “Affordable & Clean Energy”);
- xii. Reduce inequality within and among countries (a.k.a. “Reduced Inequalities”);
- xiii. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (a.k.a. “Peace, Justice & Strong Institutions”);
- xiv. Ensure sustainable consumption and production patterns (a.k.a. “Responsible Consumption & Production”);
- xv. Take urgent action to combat climate change and its impacts (a.k.a. “Climate Action”);
- xvi. Conserve and sustainably use the oceans, seas and marine resources for sustainable development (a.k.a. “Life Below Water”); and
- xvii. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (a.k.a. “Life on Land”).

1.8.6 Awareness of the SDG

In identifying the existence of awareness in women grassroots leaders, the definition used in the research is that the leaders showed interest in any or all the SDG and that their interest is in line with their society's needs.

1.8.7 Commitment Towards the SDG

The research defines responsibility towards the SDG as activities already implemented in the women leaders' locality, whether they are in line with the SDG, or otherwise. The happenings performed may have already been adapting the UN SDG, along with lines of the National Agendas.

CHAPTER 2: LITERATURE REVIEW

To successfully localize the United Nation's Sustainable Development Goals in Malaysia, everyone has a crucial role to play, be it individuals, organizations, civil societies, or governments. In this literature review, the scope focuses on Malaysian women leaders at the grassroots level and their roles in the implementation of the SDG in the country.

Due to the importance of awareness, commitment and understanding the challenges of implementing the SDG, this literature review looks into the current understanding of UN SDG and how the country and its' leaders come into the picture and perform their responsibilities.

In this chapter, the research explores existing literature on sustainable development, the UN SDG, how women leaders worldwide may be involved in the implementation of the SDG, and it then continues to the status of Malaysia regarding the implementation of the SDG. The research further explores the situation of Malaysian women leaders at the grassroots level, how the leaders connect to the SDG, and from there, what challenges they may face in ensuring the successful localization of the SDG. The literature review will conclude in a conceptual framework of a successful localization of the SDG.

The exploration of each topic in the literature review assists the research in delving towards the successful localization of SDG in Malaysia. As the discussion progresses, there is a pattern of shared responsibilities, where the countries of the world showed their commitments and share changes towards delivering on their promises, governments, organizations and societies obligate, and finally, individuals undertake the responsibilities.

2.1 Sustainable Development

Definitions of sustainable development had varied interpretations such as alteration of values (Clark, 1989) towards achieving a better-preferred future, or a process that is hands-on to create and pursue a mental picture or concept of society that utilizes all of the resources sensibly and respects it (Viederman, 1994). The World Commission most significantly described the fundamental theory of Environment and Development, or, another name for the commission, is the Brundtland Commission (Gladwin, Kennelly, & Krause, 1995). The description given was “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (Gladwin, Kennelly, & Krause, 1995).

Most, however, associate it with the environment, and how development is ecologically sustained. Interpretations such as “sustained change”, “sustained growth” or merely as successful progress were often used (Backer & Jahn, 1999). As for the concept of sustainability, the usage of the idea started in the field of renewable resources but since has been widely used elsewhere and to a broader approach (Lélé, 1991). One of the crucial developments of sustainability includes the acknowledged importance of science and technology via the development of human capabilities (Azizan, 2013). The importance of science and technology in human capital development are foresighted in government policies and action plans to be crucial towards the nation’s readiness for the 4th Industrial Revolution (Academy of Sciences Malaysia, 2015).

It is crucial that the concept is clearly defined when it comes to the usage of the sustainable development, be it socially, economically, or environmentally. An example of this well-defined and more holistic concept is the UN SDG.

2.2 UN SDG

All country member of the UNs system boldly took a huge step globally in eradicating poverty, creating sustainable environmental efforts, ensuring equal access of education and healthcare and the increase of women empowerment in September 2000 with the adoption of the MDG. Eight goals in all (as shown in **Figure 2.1**), were adopted inclusive of 18 targets which were monitored via 48 indicators exclusively (Economic Planning Unit, 2015).

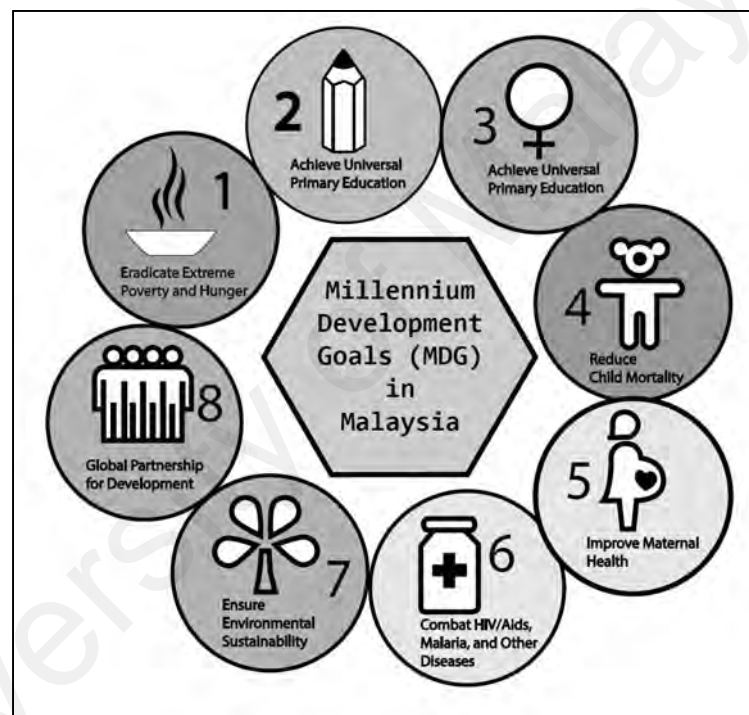


Figure 2.1: UN's Millennium Development Goals implemented in Malaysia.

Source: Adapted from <http://www.un.org>

After the worldwide success of the MDGs, the UNs member states unanimously agreed to adopt and implement the post-2015 development agenda on the 2nd of August 2015 (United Nations, 2015). The new, more comprehensive planned agenda is an action strategy for the planet itself, for the people living on it and for the prosperity of those people, and it is called the SDG. The SDG consists of 17 sustainable development goals

(United Nations, 2015) (as highlighted in **Figure 2.2**), which is within three (3) major clusters, which are:

- Economic growth:
 - To promote sustainable development towards a society that is peaceful and inclusive, while providing access to justice for all and build effective, accountable and inclusive institutions at all levels (United Nations, 2015);
 - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (United Nations, 2015);
 - Make cities and human settlements inclusive, safe, resilient and sustainable (United Nations, 2015);
 - Strengthen the means of implementation and revitalize the global partnership for sustainable development (United Nations, 2015);
- Social and welfare progress:
 - End poverty in all of its forms everywhere (United Nations, 2015);
 - End hunger achieve food security and improved nutrition, and promote sustainable agriculture (United Nations, 2015);
 - Ensure healthy lives and promote well-being for all of all ages (United Nations, 2015);
 - Ensure inclusive and equitable quality education and promote life-long learning opportunities for all (United Nations, 2015);
 - Achieve gender equality and empower all women and girls (United Nations, 2015);
 - Ensure the availability and sustainable management of water and sanitation for all (United Nations, 2015);
 - Ensure access to affordable, reliable, sustainable, and modern energy for all (United Nations, 2015);

- Reduce inequality within and among countries (United Nations, 2015);
- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (United Nations, 2015);
- Environmental protection:
 - Ensure sustainable consumption and production patterns (United Nations, 2015);
 - Take urgent action to combat climate change and its impacts (United Nations, 2015);
 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development (United Nations, 2015); and
 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (United Nations, 2015).



Figure 2.2: UN's Sustainable Development Goals implemented in Malaysia.

Source: Adapted from <https://sustainabledevelopment.un.org>

Despite the successes of the MDG and the worldwide excitement over the potential of the SDG, some researchers voiced concerns over the seeming weaknesses of the goals. An example of this is from a review of the SDG by the International Council for Science (ICSU), criticizing the SDG's framework in general as not being constant from within. The review also highlights that causality is not sustainable, especially if interlinkages or connectivity, the complexity of the dynamics and the relations with existing conflicts between the defined goals are dismissed (International Council for Science, 2015). As highlighted in the report, essential linkages such as equitable treatment of women and children throughout all the goals need to be accounted for in the planning, implementation and monitoring of all the SDG to ensure a successful outcome of the goals. These linkages suggest the importance of women empowerment, and as indicated in this research, the role women leaders play, in the successful implementation of the UN SDG.

Another concern emphasized by Magdalena Bexell and Kristina Jönsson in their article, (Bexell & Jönsson, 2017) that the SDG's main documents lacked deliberation on an individual's responsibilities and obligations. The authors suggests that individual civilians are very important for the realisation of the SDG based on two principal roles, which are as consumers, whose daily decisions for lifestyle choices have an impact on sustainable development, and as voters who has the power to hold the politicians and governments responsible and accountable for the successful implementation of the SDG locally (Bexell & Jönsson, 2017). This research builds on the belief of the individual's responsibilities, with the inclusion of the understanding that every individual has an opportunity to be a leader somewhere. Malaysian women leaders, in particular, are the same individuals with voting power and lifestyle choices that affect the sustainable development, but at the same time, they have a unique position of influence in their society.

With the implementation of the SDG, the UN member countries pledged to achieve, by the year 2030, their shared vision of a world where all can and will thrive. This vision is a world without poverty, hunger and disease, where human dignity and rights are respected, a society that is socially inclusive, open, tolerant and just, and every country may enjoy a sustainable and inclusive economic growth with decent work for all (United Nations, 2015).

As the research delves into further developments of sustainable development, we see the reason for the sudden worldwide interest in the SDG. It was admitted by the world's nations and communities that what their primary objective for their own countries are a stable blend of the development of the economy, sustainability of the environment, and social inclusion of their community. The exact targets may vary widely between different populations globally, but the primary objectives are the same (Sachs, 2012).

2.3 Women Leaders and the SDG

In her remarks at the Open Debate on women, peace and security on the 13th of October 2015, by UN Women Executive Director Phumzile Mlambo-Ngcuka, put it best when she highlighted a global study. The study discovered that the women who participated took the effort to contribute, and made sure that the community's needs are taken into consideration in peace talks and negotiations, enhance humanitarian aids, supports the peacekeepers' safety forces, improves the fiscal recuperation post-conflict and greatly assists in thwarting violent extremism (UN Women, 2015). There are many kinds of literature on the relationship between the MDGs and women's health and education. One such example that is in line with the third MDG (Goal 3: Promote Gender Equality and Empower Women) Gender equity associates with improvements in health outcomes for women and children, not to mention improvements in economic growth. Some researchers even tried to prove the positive relationship between the third MDG

goal with the improvement of women's health, education, employment and political involvement (Shannon, 2013).

UN member countries, in a consensus, adopted the document "Transforming our world: the 2030 Agenda for Sustainable Development" on the 2nd of August 2015 and later on, adopted the document officially at the General Assembly of the UNs on the 25th to 27th of September 2015 (United Nations, 2015). The Declaration that "Realizing gender equality and the empowerment of women and girls will make a crucial contribution to progress" (United Nations, 2015) includes the statement on the consensus. It is evident that the equality of gender and the equal rights of women's and girls are prioritized throughout the 2030 agenda in a cross-cutting way, in all the goals, implementation methods, targets, global partnership, indicators and monitoring (UN Women, 2015).

To achieve success in the implementation of the UN SDG, it is vital to ensure women leader's political empowerment and equality of access to a leadership position at all stages. The insufficient increase in women's participation and representation as leaders endangers the progress of gender equality and the successful implementation of the SDGs (UN Women, 2017).

2.4 Malaysia and the UN SDG

To successfully implement the UN SDG in Malaysia, the Malaysian government presented Targets and Indicators for each of the Goals (Department of Statistics Malaysia, 2017), at the 47th Session United Nations Statistical Commission (UNSC) on the 8-11 March 2016 in New York. The indicators for each of the goals are set by the Malaysian government based on the following aims and targets as follows:

- Malaysia aims to eliminate hardcore poverty for all the country's population by creating nationally adapted social protection systems and measures for all especially to substantially include the poor and the vulnerable groups while

ensuring safeguarded equal rights to economic resources for all. The government also aims to develop the poor and vulnerable groups' resiliency and at the same time, reduce these groups' exposure and susceptibility to climate-related extremities and other environmental, social and economic disasters and devastations.

- The country targets to end hunger and all or any form of malnutrition by various agricultural efforts, locally and globally.
- Malaysia aims to significantly decrease the international maternal ratio and reduce neonatal mortality throughout the nation. Some of the targets set include the preventive measures to reduce substance abuse, to terminate outbreaks of infectious diseases, reduce deaths caused by road accidents and reinforcing early warning systems for natural disasters.
- Malaysia prioritizes quality education with aims to provide nation-wide access to unbiased and high-quality education for all.
- Ensuring the achievement of gender equality is targeted by preventing any or all forms of unfairness or discrimination against all women and girls, eradicate all forms of violence against women and girls, acknowledge and put a price to unpaid care and domestic labour, while creating or ensuring the existence of enablers that promotes women's empowerment nationwide.
- The country aims to provide nation-wide access to clean water and proper sanitation by various efforts such as efforts in fostering sustainability of the supply of fresh water, and the protection of water-related ecosystems such as mountains, forests, wetlands, rivers, aquifers and lake.
- The country aims to guarantee affordable and clean energy nationwide by providing all-encompassing access to reliable modern energy facilities, offer a

sustainable power source in the worldwide energy mix, and to advance research and development of clean energy by global collaborations.

- Malaysia also aims to ensure inclusive and equitable quality education and promote life-long learning opportunities for all, by improving the nation's level of economic efficiency, gain dynamic and industrious business for the people of the country, while encouraging the implementation of sustainable tourism.
- To build resilient infrastructures, promote inclusive and sustainable industrialization and foster innovation, Malaysia plans to increase advancement in comprehensive and feasible manufacturing, while enriching scientific research and elevating the technological competencies of the nation.
- The country aims to reduce inequality within and among nations, by assuring equality in prospects and opportunities, and also to ensure improved representation and voice for developing countries in fundamental leadership worldwide.
- The targets set to make sure that cities and human settlements are inclusive, safe, resilient and sustainable, include access to sheltered, moderate, open and feasible transportation structures for all, improve inclusive and sustainable urban growth and capabilities while decreasing the adverse natural effect of urban communities.
- The country aims to ensure sustainable consumption and production patterns by accomplishing the sustainable administration and productive utilization of natural resources and in guaranteeing that individuals have access to essential data and practise mindfulness for sustainable advancement and ways of life which is in harmony and sync with nature.
- Malaysia aims to take urgent action to combat climate change and its impacts, by incorporating environmental change measures into national approaches, procedures, and development, and to enhance training, raising awareness of

human and institutional limitations on ecological change relief, adaptation, lessening effects and early warning systems.

- The country aims to conserve and ensure the sustainable use of the oceans, seas and marine resources by efforts such as counteracting and altogether diminish marine contamination while limiting and addressing the effects of sea acidification.
- In order to safeguard, repair and encourage sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss, Malaysia aims to guarantee the protection, reclamation and practical utilization of earthly and inland freshwater biological communities, whilst ending deforestation, and incorporating biological system and biodiversity values into national and local arrangements.
- Malaysia aims to promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels, by ending abuse, mistreatment, trafficking, exploitation and all types of brutality.
- The country plans to widen and reinforce the support of developing countries in the establishments of worldwide authority, strengthening the means of implementation and revitalize the global partnership for sustainable development, while guaranteeing public access to data and secure fundamental liberties, as per national enactment/ laws and international agreements.

An analysis of the targets and indicators set by the government shows a comprehensive plan to ensure the successful implementation of the SDG in the country. The existence of projected aims and goals (Department of Statistics, 2017) implies awareness and understanding of the importance of SDG in a nation-building effort of Malaysia which is directly in line with the UN's set indicators (Inter-Agency and Expert

Group on Sustainable Development Goal Indicators (IAEG-SDGs), 2016). As Malaysia is already heeding the UN's request to localize the SDG by utilizing the indicators, the country then needs to consider the roles that gender equality and women leaders play in the achievement of the targets and indicators as widely advocated by various UN bodies (UN Women, 2015).

Research of the UN SDG in relations to Malaysia is mostly related to one Goal at a time, usually highlighting one particular issue, such as inclusive development for social work (Jayasooria, 2016), environmental science and technology (Rahmat, 2010; Mahadi, 2016) or any one particular SDG, such as SDG14 (Backer & Jahn, 1999; Vella, 2017; Taylor, 2017). This research method of analysing only one goal at a time is why this research chose an overall picture of all the SDG to see the relations of all the UN SDG to Malaysia and its' interlinkages.

The researcher discovered that there is a lack of mention on the importance of any particular leader or front-runner who could be the catalyst to any or all of the SDG implementation. Malaysia's gender profile (Greg, 2017) highlighted that the country still had significant challenges to overcome as only 10.4% are women in the national parliament. Therefore, this indicates a great need for intervention to ensure that the nation gives opportunities for women to assist in successfully localizing the SDG. Hence, the importance of the topic of this research which indicates the strengths of women leaders in the country, who are ready to play their roles.

2.5 Malaysian Women Leaders at the Grassroots Level

Great strides in the progress of women empowerment in Malaysia were made since our Independence Day in 1957. An example of this is the country's effort in steering credit towards unserved, remote areas and targeted sectors. To ensure inclusivity in the

country's financial system (United Nations Development Programme, 2015), the country focused efforts towards isolated areas of the nation.

One of the definitions of leaders as the women parliamentarians is the responsibility of being a channel between their constituents and the executive branch of the government. They hold the executive office accountable and relentlessly bring the spotlight down on the latest occurring issues specifically regarding women empowerment and gender equality that occurs locally and internationally for the government to pay attention to (Syahirah, Abdul Hamid, & Ramli, 2015). However, the current workplace issues and lack of support and a lack of work-life balance, it is no wonder that women are most likely to quit their jobs, especially in the science and technology industry (Uzoiqwe, Low, & Noor, 2016). Regardless of industry, women have low representation in the upper ranks of most organizations.

Malaysia has a meagre percentage of women holding top management positions as civil servants (37.1%) and in the private sector (15%) (Ministry of Women Family and Community Development, 2015). These numbers reflect the situation of women leaders nationwide, all the way to the grassroots level.

The same applies to women appointed as head of the *Jawatankuasa Kemajuan dan Keselamatan Kampung* (JKKK)/ Civil Societies, with the lowest percentage are holding top positions. They too have the responsibilities as intermediaries between their constituents and the government (Hashim, 2005). Though women may not have as much power or political impact in their society as men, they often do have a voice in matters of the community (Cecilia Ng, 2006). An example of this is in the case of Amazonian horticulturalists in Ecuador who gained influence by negotiating separatist disputes in their village (Von Rueden, 2015).

It was argued that women leaders' more democratic approach (Eagly & Johnson, 1990) does not affect their emergence of power. The democratic approach may not be the reason

that the women leaders achieve less power, but the reason may be that the existing structure hinders the development of women leaders' power, mainly as a local leader. These much-needed structures vary from employment inequalities of wages and opportunities to lack of support for work-life balance, and in assisting women re-entering the workforce (Syahirah & Hussain, 2016).

The dynamics of power will shift positively if a woman local leader utilizes the global goals and targets. An example of this is in the energy sector, which addresses the enormous impacts of involving women in achieving the goals (Havet, 2003). Havet concluded that from a gender perspective, when the organizations emancipate women's schedule and salaries and when there are plenty of economic opportunities (the outcome of the achievements of targets), school attendance amplified, agricultural productivity improved, incomes increased, and families' well-being enhanced. The impact of this does affect not only other women and children but also the local community and the increased development of a nation in the long run. These goals provide local leaders with the insight of UNs' Member Countries' best practices, with the exceptional quality of focusing on women's roles in achieving those targets. A review of existing research (UN Women, 2015) shows that the significant increase of awareness of female leadership in the member states of the UN, especially in countries such as Brazil. The country is spearheading a global initiative called Financial Education for Girls which involves other nations such as China, India and Rwanda, and the United States of America (USA). The USA meanwhile spearheads a worldwide initiative called Gender Equality and Education for All. Both programs are under the SDG Action initiatives monitored by the UN. Awareness of the importance of female leadership is also reflected in the various requirements set by most governments especially when crisis and war crimes are at a high (UN Women, 2015).

It is, therefore, in the opinion of this researcher that even with their responsibilities as only intermediaries, Malaysian women leaders are in the best positions to make a

significant change to the community's development, and nation's advancement via the benefits of the localization of the UN SDG.

2.6 Malaysian Women Leaders and the UN SDG

This research explores various fields that connect Malaysian women's strengths and abilities with the successful implementation of the UN SDG.

Overall trends in sustainable development in Malaysia are of environmental concerns, poverty eradication (Shahizan & Kurias, 2011) and gender development issues (Sulaiman, 2011). However, in line with the affirmation of the UN's MDG and afterwards, SDG, increased interest was seen among the country's researchers in more wholesome and comprehensive sectors, such as gender leadership, partnership initiatives, and strong institutional roles. Adnan outlined that each party, especially government agencies need to play vital roles in ensuring a successfully sustainable shift in the country (Adnan, 2014). Adnan also states that societies need to be aware of the current environmental situation and responsibilities. This awareness is vital at an individual level, particularly for women, who can play important roles to help the country achieve the targeted global goals (Economic Planning Unit, 2015).

This study will be an essential examination of the Malaysian women grassroots leaders' awareness, and dedication to the accomplishment of the SDG in the country. There is a need to exhaustively consider the Malaysian women leaders' roles in understanding the importance of SDG, how it is applied to the everyday lives of Malaysian population and at the same time, learn from other countries who may have successfully implemented the goals in their own countries.

A comparison between the 11th Malaysian Plan and the SDG showed considerable differences in women's role in the development of a nation. The 11th Malaysia Plan (Economic Planning Unit, 2016) consists of singular/ one-dimensional roles of women at

any given time, whereas the SDG highlight the interconnectivity of all the goals and how gender equality plays a pivotal role in achieving the goals, cutting across all of the sectors at any given time. The significance of gender equality was also differently handled as the 11th MP includes women's roles and needs in specific subcategories, while in the SDG, not only was gender equality set as one of the primary goals, the role of women is often highlighted regardless of which was the SDG discussed (United Nations, 2015).

The research delves further towards the women leaders' awareness and commitment of SDG, along with the existence of various challenges faced such as gendered power dynamics, and how it may affect the successful localization of the multiple sectors within the SDG. The application of science and technology is also explored to see their effect on the adaptation of SDG.

2.7 Challenges in the Localization of the SDG

As the role of Malaysian women leaders is explored and further examined (Ariffin, 1999; Othman, 2006) this research aims to continue with the exploration of the women leaders' forte to successfully implement the SDG. Other than their awareness and commitment of the UN SDG, challenges they face may also be considered as their forte as they may have met those challenges before and solved or worked around them, or they may already possess all the need resources to address and overcome those challenges.

2.7.1 The Big Five Traits and Adaptive Leadership

Some research highlights the importance of leadership roles women need to play in the successful implementation of the SDG (UN Women, 2015; Koehler, 2016). The development policy and related programs require specific attention to make sure that girls and women's gratification of their rights is considered, allocated for resources, adequately

implemented and regularly monitored using the best indicators (Esquivel & Sweetman, 2016).

The first theory suitable to show the forte of women leaders, is the Big Five Personality Traits, which identifies the effectiveness of an individual's leadership by measuring extraversion, openness to experience, agreeableness, conscientiousness and neuroticism (McCrae & Costa, 1987) which was adapted from the Cattell's ground-breaking 16 Personality Traits (Cattell & Mead, 2008). In measuring these traits, there will be an opportunity to see the predictor of leadership abilities that Malaysian women leaders have. To be able to grasp the women's potential, Malaysia will come to appreciate women leaders as are seen in these present time, as a symbol of modernity and the potential for better leadership, as gender equality will benefit not just individuals, but also organizations and society (Day, 2011).

The second theory is the Adaptive Leadership which is a type of leadership that utilizes facts/ information and skills or abilities to resolve difficulties that are the same or differs from a situation in which the information, skills, and character were first encountered (Heifetz & Laurie, 1997). It is also suitable for the organizational level where its applications used in a varied type of organizations such as non-profit or religious organizations, and healthcare (Sherron, 2000; Northouse, 2015).

Both these leadership theories are applicable for the localization of the SDG as their utilization in real life not only suits individual levels but also fits the usage in other settings such as family, education system, employment types, and societies. The factor of openness to experience and adaptability play essential roles in the assimilation of SDG in the local community. Measuring the characteristics of Adaptive Leadership and the Big Five Traits in Malaysian women leaders will expectedly show the actual or perceived power that they have in their community and the relations to the ability to adopt sustainable development international goals to their locality.

2.7.2 Gender Leadership and Power Dynamics

The result of analysis of the World Social Science Report 2016 from a gender leadership perspective showed gaps of research in social science on inequality (UNESCO, 2016). The researcher examined the narrowed down differences such as dimensions other than the economic aspect and analyzed their connections to each other and the dependent variable instead of studying the aspects separately. The dimensions that affect the implementation of SDG locally and internationally were of gender leadership among others.

For gender leadership, women globally, have been identified as a significant business or economic opportunities. They are the ones in control of most consumer expenditure, creating their fortunes and venture settings, live longer compared to men, have significantly enhanced company's performances, fortify economies, improve the well-being of future generations and are progressively improving in higher educations (Patel, 2013). Literature then argues on what causes women's hindrances to advance when they are potentially great leaders. With many women already holding unlimited leadership positions such as elected prime ministers, high government officers, and earning multiple scholarly titles, it has been surmised that several challenges of unequal treatments in education, health and employment, and lack of support systems in place by either the government or employers caused the barriers women face in the world today. It is, therefore, necessary to not only see the advantages that women leaders have but also their disadvantages in the current situation.

There are many theories in existing literature about gender leadership theories and its effects on gender inequality. This review focused on four (4) specific areas identified. The interest in the localization of the 17 UN SDG, the leadership characteristics of women local leader, the perception of existing gendered power dynamics, and the empowerment

of women leaders as a step to gender equality. Even though there were a variety of gender leadership concepts found in the literature review, this paper will predominantly emphasize the effect of power dynamics and leadership traits about the other factors. In some definitions of leadership, there emerges a need to distinguish between power and the concept of management because the capability to be a leader necessitates that an individual must first have power. "Power" signifies the methods leaders possess to affect others possibly. For example, a follower's recognition or bond with the leader, or a leader's ability to give an incentive or penalize performances (Bass, 1999; Bass & Riggio, 2006).

Gendered power dynamics were first mentioned as early as 1911 by Charlotte Perkins Gilman on essentially women's domestic roles that need to be given recognition as women have the ability to survive economically (Gilman, 1966), and also how women's power dynamic differs from men, where women are more likely to be patient, charitable, and work hard (Gilman, 1966).

In the exploration of power dynamics between genders, one research finding of regardless who is disfavoured, men or women; women leaders tend to react in a democratic approach (Martin & Fuller, 2006). There is an argument that women leaders' approach does not affect their emergence of power. The approach may not be the reason that they achieve less power, on the other hand, it may be that the existing structure hinders the development of women leaders' power, especially as a local leader. The dynamics of power for a woman local leader may be greatly affected if she utilizes the global goals and targets. An example of this is in the energy sector, where it highlights the huge impacts of involving women in achieving the goals (Havet, 2003). The impact does affect not only other women and children but also the local community and the increased development of a nation in the long run. These goals provide local leaders with the insight of UNs' Member Countries' best practices, with the exceptional quality of

focusing on women's roles in achieving those targets. A review of existing research (United Nations, 2015) shows that the understanding of the significance of female leadership has matured in the member states of the UN. The various requirements set by most governments especially reflects the significance of female leadership where crisis and war crimes (UN Women, 2015) are at a high.

2.8 Conceptual Framework

Localizing the SDGs means learning, understanding, and adjusting or adapting the goals to suit the needs of any community accordingly. Every society is different with a multitude of needs and wants; however, there are pre-determined fundamental requirements that are outlined by the UN on how to adapt the SDG to different situations. For Malaysia, UNDP Malaysia plays the most prominent role in this, with the assistance of various Ministries, NGO, private sectors, academic institutions, agencies, and individuals. However, in ensuring that everyone plays their part, the Malaysian women leaders at the grassroots level are the best examples to showcase this.

With their own community's welfare and development in mind, there is a value for an exploration towards what advantages or forte these women have fitted with existing leadership qualities and power dynamics that matches with the requirements to localize SDGs in Malaysia. Their awareness and commitment towards the UN SDG are paramount in situations like these. To successfully adapt them, it is important especially when a global aim needs adjusting to the local community's needs, and the nation's aspirations.

For this study, the conceptual framework used is as shown in **Figure 2.3**.

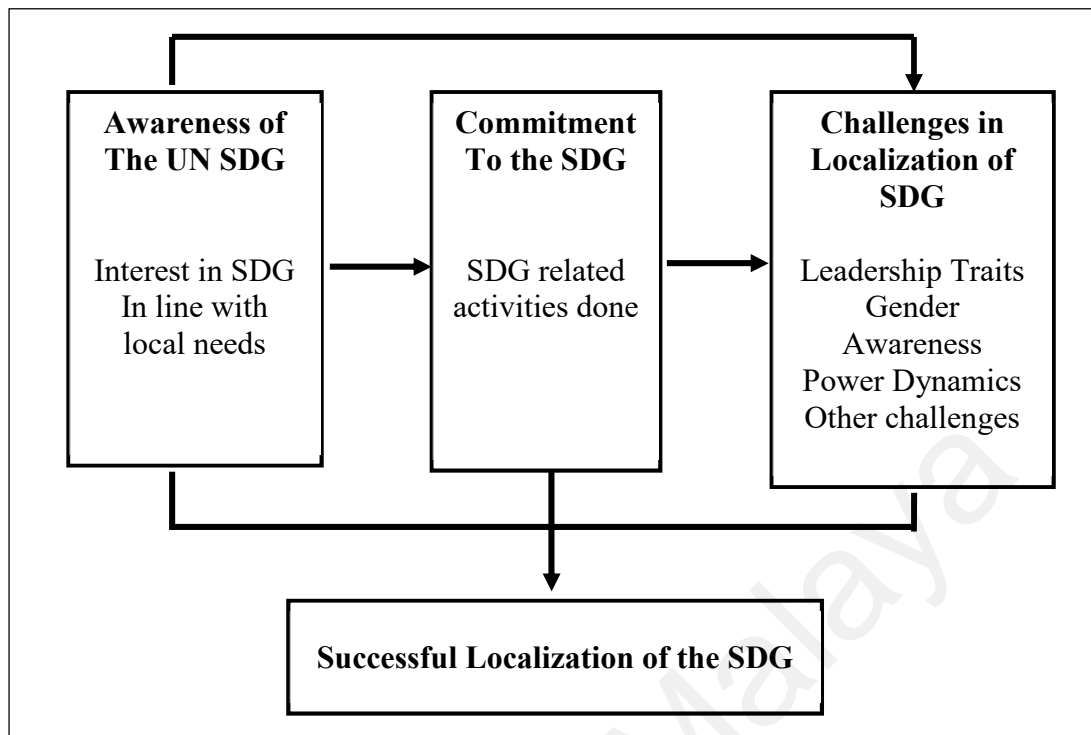


Figure 2.3: Conceptual Framework

Awareness and Commitment to the SDG, being the two Independent variables that will play the most significant role to localize the SDG, are essential to be identified as in existence in these women grassroots leaders. By identifying the challenges faced, the leaders may be able to strengthen their forte and reduce their weaknesses, and in doing so, ensures the successful localization of the SDG.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter highlights the research methodology chosen and implemented to answer the research questions posed earlier on in the research. Further explanation of the research design, methodology, data collection method, the target population, sampling method, an instrument used, the statistical analysis made, and a pilot study that was carried out.

3.1 Hypotheses

The hypotheses of this research are:

- i. Malaysian women grassroots leaders are aware of the SDG;
- ii. The women leaders' actions reflect a commitment towards the SDG; and
- iii. There are challenges that the women leaders face in implementing the goals locally.

3.2 Research Design

The research design used was correlational, where no applied intervention, no controlled variables, and the exploration of the relationship between variables were utilized in statistical analyses.

The participants within each group had similar factors such as all were women, elected leaders in their community and aged 18 and above. To increase internal validity and eliminate the most difficult of variables, the researcher chose group members beforehand.

The researcher disseminated a structured questionnaire, analysed cumulative data, and tested correlations to identify various challenges that may exist in the implementation of SDG.

3.3 Research Methodology

The research is quantitatively implemented. The source of primary quantitative data is an explanatory questionnaire designed to identify the existence of awareness and

commitment to the UN SDG in Malaysian women leaders. Even though the majority of research on the SDG was quantitatively done, it has been criticised as too data-centric, as most research was quantitatively done (Fukuda-Parr, 2017). In the case of research on sustainability done in Malaysia, it still lacks both quantitative and qualitatively (Economic Planning Unit, 2015). In this research, the quantitative methodology was chosen to show the statistical data gathered from the sample that may then be generalized to other groups of leaders in the country or even worldwide. Even as highlighted in a meta-analysis of research done by social scientists, a majority still chose the quantitative method as the alternative is vulnerable to error as relatively researches often draws conclusion informally from available research, and most social researchers perceived the qualitative methods as generalization based on personal experience and interviews, hence are also prone to errors (Eagly & Johnson, 1990). Various social science research on sustainable development was also done using quantitative methodology. Among them are Ergas' research regarding the status of women and the carbon dioxide gas emissions from the view of environmental sociology (Ergas, 2012), the majority of studies on literacy and health, such as a study in Pakistan which compared children's health between those born to literate women and comparing them to those born to illiterate women. The significant finding of this research led to the difference of vaccination of the children (Ali, 2011). Literature found are mostly in specific fields; there are none so far that evaluates all the UN SDG in a gender leadership framework.

The researcher collected secondary data from various government agencies, for example, the Department of Statistics Malaysia (DOSM), Ministry of Rural and Regional Development (MRRD), the Ministry of Women, Family and Community Development (MWFCDD), and from the private sector such as Spatialworks Sdn. Bhd., and small, medium enterprises (SMEs). The data collected from the DOSM centres around various consensuses of the Malaysian population and data from Ministries or agencies involved

gathered from the planning and implementation of existing programs in the country. Examples of these include information of women holding various positions in local authorities such as the Village Development and Security Committee, or also locally known as JKKK. The report was provided by the MRRD, while MWFC provided information on the all-women volunteer groups called *Komuniti Perkumpulan Wanita* (PERWANI).

3.4 Instruments and Sources of Instrumentation for Data Collection

The primary tool used is the questionnaire, which was used to quantify the results and enumerators were deployed throughout the nation to gather responses to the survey. Enumerators were given an explanation and training by the researcher, on how to manage respondents and how to collect the data. A set of questions were prepared to be able to gather answers from participants regarding the research matter. The set of questions are to be replied by the individuals via printed or electronic form. The forms consist of single and multiple-choice questions, Likert scale items and open-ended questions. The disseminated questionnaires were to groups of individuals identified as samples from the population. The series of questions asked to the specified sample group was with the intention to get statistically useful data about the research topics and identified variables.

The questionnaire is an essential mechanism, as it was formed and appropriately managed by basing it on pre-existing research on leadership traits and gender awareness, at the same time, using the pre-test method on a smaller subset of targeted respondents. A pilot study of five respondents was conducted to ensure that the data to be collected were appropriate for the target group specified, to ensure that the data collected are agreeable to be analysed, to reduce prejudice in the questions and to ensure varied and appealing question.

For this research, a structured set of questions, divided into four parts, consisting of leadership characteristics (Avolio, 1999; Sherron, 2000), organizational data (Martin & Fuller, 2006), and gender-related preferences (Patel, 2013) adapted from a few sources. A translation to the Malay language was done to ensure a better and more efficient understanding of the topics enquired.

3.5 Data Collection Method

The questionnaire method is used to collect quantitative information about relevant topics from a sample of a population. The researcher contacted the respondents via various technological tools such as the telephone, face-to-face or online.

Initial data collection involved government agencies such as the Department of Women's Development (DWD) under the MWFC, agencies under the MRRD and individual enumerators from both volunteer organizations and political parties. What followed was a series of discussions and meetings where the researcher informed about the structure of the surveys, objectives, and purpose of the data collection and how to gather the information from women leaders at the local level.

There were three (3) approaches to data collection for the survey:

- i. Respondents completed the online survey form themselves via a link provided through email or the social media;
- ii. Respondents completed the forms in laptops supplied by the enumerators; and
- iii. Respondents completed a hard copy of the survey and returned them to the enumerators, who then keyed in the information in the survey's website or sent them to the researcher.

As an additional method, another instrument used for data collection, which was the interview session. This strategy allows the researcher to meet the informants and make necessary inquiries on the research topics chosen. The researcher effectively gathers

information from the sources by asking questions based on the questionnaire developed and cross-examining the respondent. This method allows a platform for explanation towards a better understanding of the questions and information needed. However, it was a very time-consuming effort with a high level of financial and workforce consumption.

To further enrich the data collected interviews were conducted via face-to-face and via telephone to three individuals representing the government sector, NGO and the women leaders themselves. These instruments were used for the data collection of this research because it was found to be suitable, and the data collected seemed to be appropriate and complementing of the other data sourced.

3.6 Target Population and Sample Size

The target sample for this study is Malaysian women leaders at the grassroots level from the entire Malaysian female population. The sample targets Malaysian women aged 18 years and above, holding a position in any of these organizations:

- i. Village Development and Security Committee, or also locally known as the *Jawatankuasa Kemajuan dan Keselamatan Kampung* (JKKK);
- ii. Federal Village Development and Security Committee, or also locally known as *Jawatankuasa Kemajuan dan Keselamatan Kampung Persekutuan* (JKKKP);
- iii. Residents' Associations (a.k.a. *Persatuan Penduduk*);
- iv. Neighbourhood Watch groups (a.k.a. *Rukun Tetangga* or RT);
- v. Representative Council of Women and Family (a.k.a. *Majlis Perwakilan Wanita dan Keluarga* or MPWK); and
- vi. Various political parties.

Positions vary from all the types of organizations from the head of the village and Secretary of the JKKK to Head of state for a political party. The similarity between these women is that they were elected to be in the position that they currently hold and have a

locality or community that they are in charge with and responsibilities that come with the posts.

3.7 Sampling Method

The method used for sampling is the cluster and area sampling, where the total population of women leaders in the country, were divided into types of organizations and then continued to be distributed by the state. Types of organizations, which included government bodies, NGOs and private companies were randomly selected for inclusion of the entire sample.

3.8 Instruments Used

The researcher used SurveyMonkey, a website enabling paid and personalized survey questions as the instrument for the application of the questionnaire. The usage of the online survey ensured a more significant reach of respondents and a less costly data collection process. However, because of some obstacles during fieldwork, usage of the survey questions in hard copy was widely used. The obstacles faced included the inability of some respondents to use the online version of the survey, and the respondents seemed to be taking a much longer time to finish an online survey, compared to a printed one. In circulating the survey, various instruments were used including emails, social media, communication applications and printed hard copies dispersed manually. The researcher distributed one thousand copies of the printed questionnaire nationwide.

3.8.1 Layout of Questionnaire

The division of the questionnaire involves four (4) sections which include demographic information, leadership traits, organizational status and gender responsiveness. Appendix A contains a copy of the survey.

3.8.2 Items in Questionnaire

Items in the questionnaire included demographic information such as marital status, number of children, religion, race, educational level, employment status, household income, Information Technology (IT) facilities owned, and social media usage.

The second part includes items such as leadership characteristics. The third part consists of questions about posts held, organizational data and sustainable development activities. Questions also represent the awareness and commitment of the UN SDG in connection to the participant's organizational status and activities.

The final part of the survey consists of gender-related items and the respondent's view of the existing power dynamics in their locality and in general.

3.8.3 Scale of Measurement

The scale used in answering the two primary research questions is the Guttman Scale. The researcher analysed accumulative values by identifying the presence of awareness and commitment towards the UN SDG.

As for the analysis of the challenges faced, to identify and measure potential significant variables the researcher used the Likert Scale.

3.8.4 Other Instruments Used

As a secondary measure to assist in the data collection and analysis, the interview methodology applied in the research was by purposefully sampling three (3) participants from the same group of participants chosen for the implementation of the questionnaire. The participants were of different backgrounds, is one from the government, one from an NGO and one from a resident association.

The approach to the data collection was quantitative as the type of response options to the questions were both close-ended and open-ended. The interview was structured based on the questionnaire, and it led to quantifiable data with scores to the answers and detailed opinions and answers.

The questions designed for both the survey and the interview is in the English language, however, in making sure that the research receives proper responses from the participants, the interview process itself was conducted using both the English Language and the mother tongue language, which in this case is the Malay language.

The usage of the Malay language was to ensure that those who find difficulty in understanding some terms in English, could still contribute significant information regarding the topic of the research.

3.9 Statistical Methods and Data Analysis

A Scalogram analysis was done to examine the cumulativeness of the respondents' answers in relations to the SDG and to prove that there is statistical significance in the primary hypothesis. The researcher also used the chi-square analysis, Pareto analysis, and the Analysis of Variance (ANOVA) in analysing the challenges faced.

3.10 Reliability of Research Instrument

To do a pre-test panel for the questionnaire, the researcher implemented a pilot study. It involved five potential participants of women leaders in various fields, which were from the local area of Putrajaya, Malaysia. The participants included three women from the local community's Civil Societies, and two women are government experts on local leadership in the country. The demographics of participants chosen for the pilot study is as seen in **Table 3.1**.

Table 3.1: Participants in the pilot study.

Subject	Gender	Race	Specialty	Professional Affiliation	Local Leaders
001	Female	Malay	Local community	Political Body	Yes
002	Female	Malay	Local community	Private company	Yes
003	Female	Malay	Local community	Political Body	Yes
004	Female	Malay	Women Empowerment	Government	No
005	Female	Malay	Rural Development	Government	No

The participants of the pilot study provided consent and views on the overall feel and general potential for ease of answering the questions for the targeted local women leaders. Pilot findings include that the researcher needs to expect some respondents to ask questions for further clarification on some issues. However, there was no suggestion for any changes to be made to the questionnaire.

3.11 The validity of Research Instrument

The definition for external validity used in this research are “the extent to which the results can be generalized beyond the sample used in the study” (Burns & Grove, 2005) or whether the findings of the research are generalizable (Coughlan, Cronin, & Ryan, 2007). The external validity of a research instrument is generally dependant on the level of representation the sample to which reflects the population as attached in Appendix B. This sample was drawn randomly from women selected as leaders in various organizations and agencies. Therefore, the external validity of this research is concluded to be high as the results may apply to other populations similar to the ones chosen. It may even be suitable for other developing countries to emulate and adapt, especially the countries with reasonably similar gender equality profile.

CHAPTER 4: DATA ANALYSIS AND RESULTS

The core argument of the research is that Malaysian women grassroots leaders' forte may contribute to the successful implementation of the UN SDG locally. As Malaysian women leaders demonstrated their leadership traits, the awareness of the SDG, and shown commitment towards their SDG in their actions, their strengths are opportunities organizations or governments need to take advantage of.

In evaluating the first two research questions, "Are the Malaysian women grassroots leaders aware of the SDG?" and "Is their commitment towards SDG reflected in their actions?". The researcher made some analysis of the types of SDG related programs implemented between 2013 to 2017 and which types of SDG related activities that were of most interest to their locality. On the third research question, "What are the challenges that these women leaders face in implementing the goals?" statistical analysis was used to identify prominent variables that may correlate with the variable "Interest in SDG".

4.1 Response Rate

More than one thousand surveys were initially sent out to all 15 states in Malaysia (Federal Territories of Kuala Lumpur and Putrajaya was considered as different states for the research) via mail, by hand (hard copies), through social media and by email. Out of all the surveys disseminated, 668 respondents answered the survey. However, 40 out of the 668 polls were incomplete and therefore, unusable. Considering 628 surveys were usable out of 668, the response rate was 94.01%.

4.2 Demographic Profile of Respondents

The women selected are aged 18 years and above, with leadership positions at the grassroots level from various organizations.

4.2.1 Frequency Distribution by State

Out of the 628 respondents, the highest number of responses came from the states of Terengganu, Kedah and Negeri Sembilan as shown in **Table 4.1** and presented in **Figure 4.1**. Terengganu has the highest number of respondents, with 264 completed surveys (42.0%) and the states of Perlis and Penang Island has the least amount of responses, with only one questionnaire completed each (0.2% each).

Table 4.1: Frequency of Response by State.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Johor	39	6.2	6.2	6.2
	Kedah	105	16.7	16.7	22.9
	Kelantan	45	7.2	7.2	30.1
	Melaka	8	1.3	1.3	31.4
	Negeri Sembilan	62	9.9	9.9	41.2
	Pahang	7	1.1	1.1	42.4
	Perak	17	2.7	2.7	45.1
	Perlis	1	0.2	0.2	45.2
	Penang Island	1	0.2	0.2	45.4
	Sabah	2	0.3	0.3	45.7
	Sarawak	32	5.1	5.1	50.8
	Selangor	6	1.0	1.0	51.8
	Terengganu	264	42.0	42.0	93.8
	WP KL	7	1.1	1.1	94.9
	WP Putrajaya	32	5.1	5.1	100.0
	Total	628	100.0	100.0	

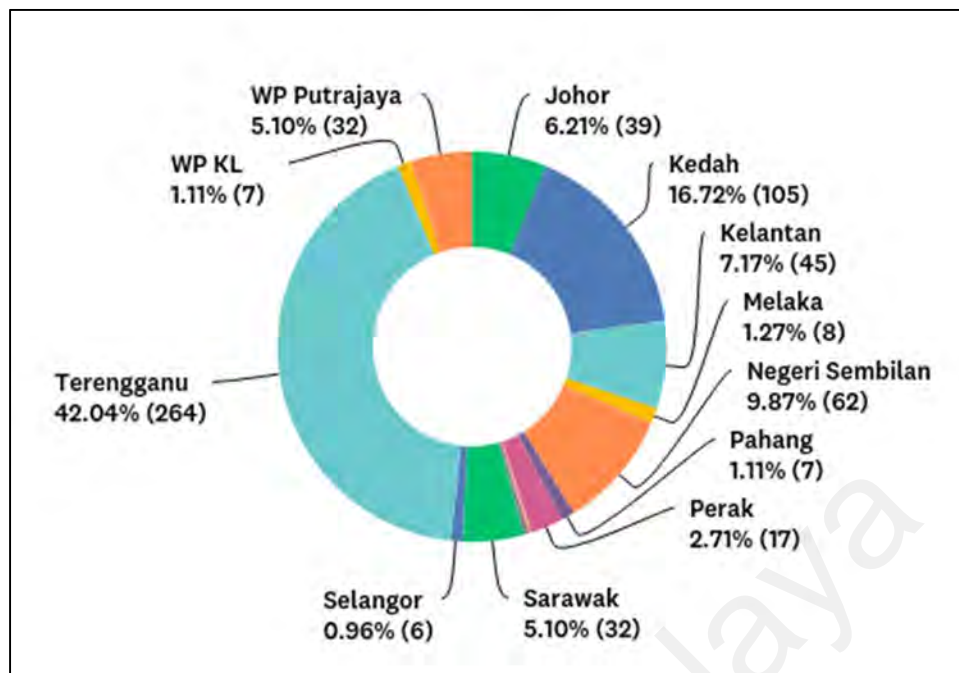


Figure 4.1: Frequency of Response by State.

The data in **Table 4.1** and **Figure 4.1** represent responses by all the states at different frequencies as various factors came into effects, such as the willingness of respondents to take time to fill in the questionnaire and the proactive efforts made by the enumerators. The Mean for the frequency of respondents by State is 8.53, and the Standard Deviation is 5.08, with N=628.

4.2.2 Frequency Distribution by Age

The biggest age group representing the respondents are aged 41 to 50 years old. This group is followed by the group representing ages of 51 to 60 years old and ages 31 to 40 years old, as presented in **Table 4.2**.

Table 4.2: Frequency of Response by Age Category

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30 and below	93	14.8	14.8	14.8
	31 to 40 years old	147	23.4	23.4	38.2
	41 to 50 years old	180	28.7	28.7	66.9
	51 to 60 years old	157	25.0	25.0	91.9
	61 and above	51	8.1	8.1	100.0
	Total	628	100.0	100.0	

The histogram in **Figure 4.2** shows a steady increase of women leaders as age increases. However, there was a noticeable decline after the age of 60 years. Deductions can be made from this and from different feedback given by enumerators that these older women are not technologically savvy, and most declined to take the time and effort to read and answer the questions. Those that answered the questions mostly asked for assistance from the enumerators on understanding the questions. Their level of education is also indicative of why they are reluctant to answer the survey.

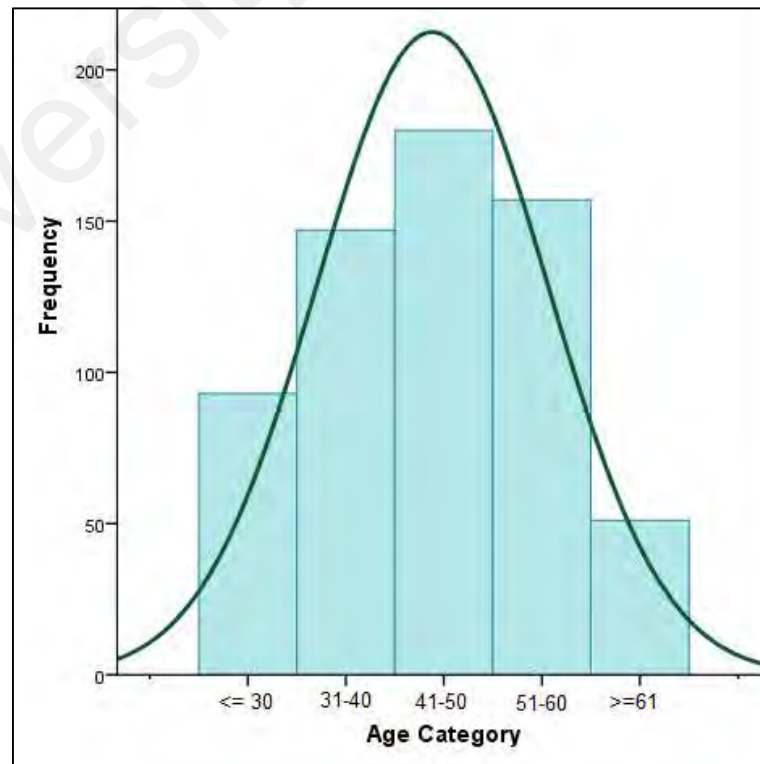


Figure 4.2: Frequency of Response by Age Category

4.2.3 Frequency Distribution by Race

Malaysian elected local leaders are predominantly Malay, and the same goes for Malaysian women grassroots leaders. It is also evident from the frequency of respondents that the vast majority is Malay, with 94.75%, and the rest are Chinese (2.07%), Indian (0.64%), Indigenous (1.91%) and others (0.64%).

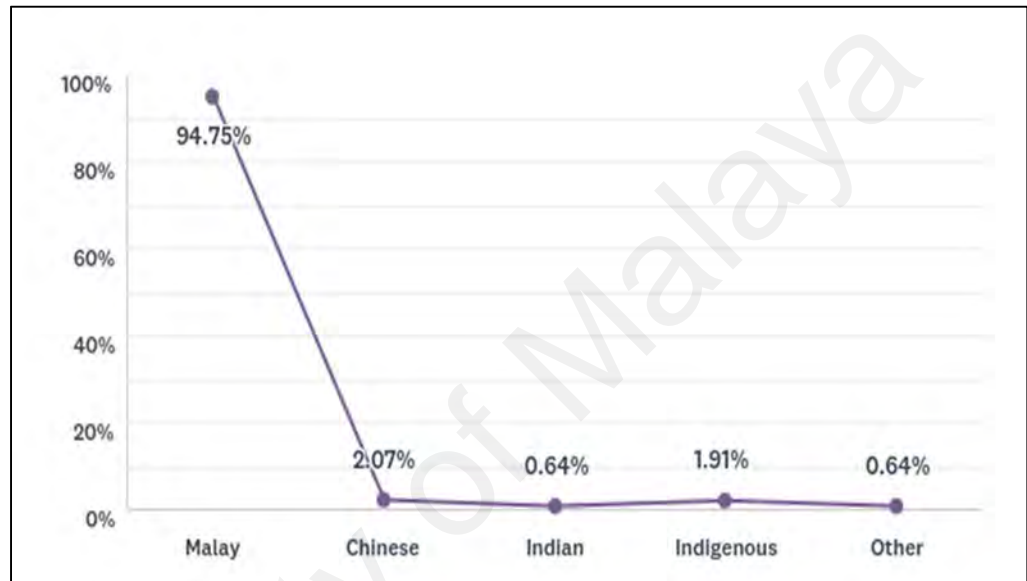


Figure 4.3: Percentage of Response by Race

4.2.4 Frequency Distribution by Religion

In line with the respondents' race distribution, the majority are Muslims (people who practice Islam) represented by 95.54% of the respondents, and the rest are Buddhist (1.91%), Christians (1.75%), Hindu (0.48%), Confucianism, Taoism and other traditional Chinese religion (0.16%) and others (0.16%).

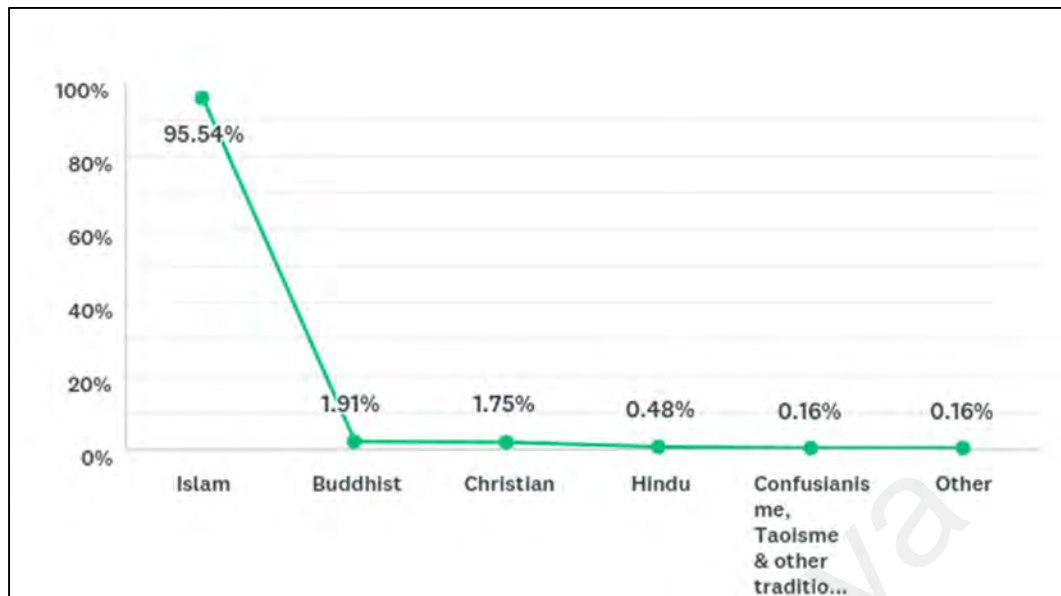


Figure 4.4: Percentage of Response by Religion

4.2.5 Frequency Distribution by Educational Level

The research moves on to an overall view of the educational level of the respondent as seen in **Figure 4.5** where the highest level of education achieved by the respondents is as a high school graduate. The second highest is at the Diploma level.

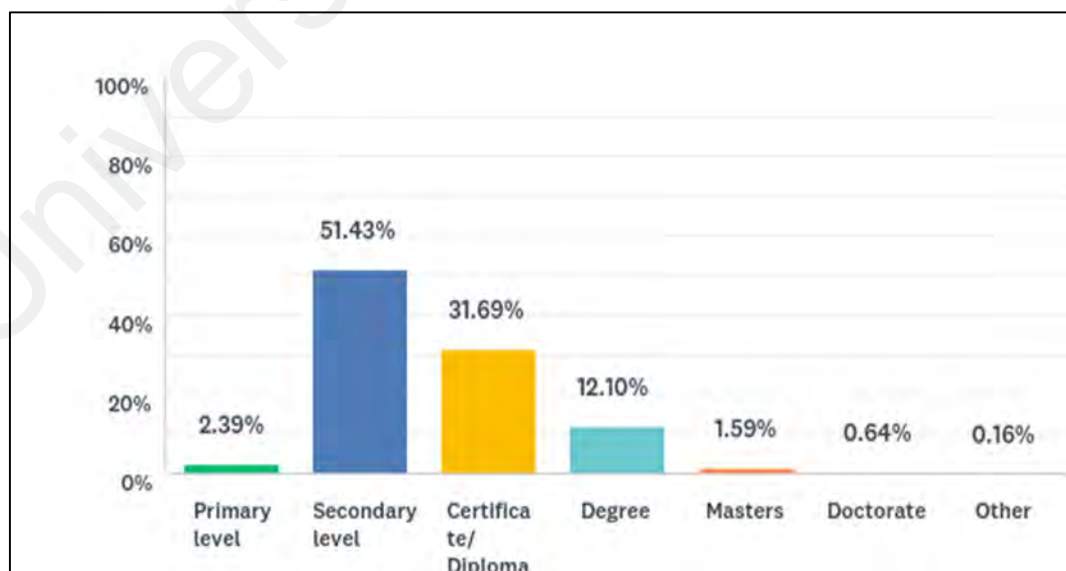


Figure 4.5: Percentage of Respondents' Highest Level of Education

The research suggests it to be a correlation between the respondents' age categories and their highest educational attainment level. A cross-tabulation of the respondents' age group and educational level are done and elaborated in the "4.3 Methods of Analysis" section.

4.2.6 Frequency Distribution by Marital Status

The distribution of respondents' marital status is as shown in **Figure 4.6**, where the most significant percentage are Married (69.59%), and the rest are Single (13.54%), Divorced (10.51%), Widowed (5.25%) and Separated (1.11%).

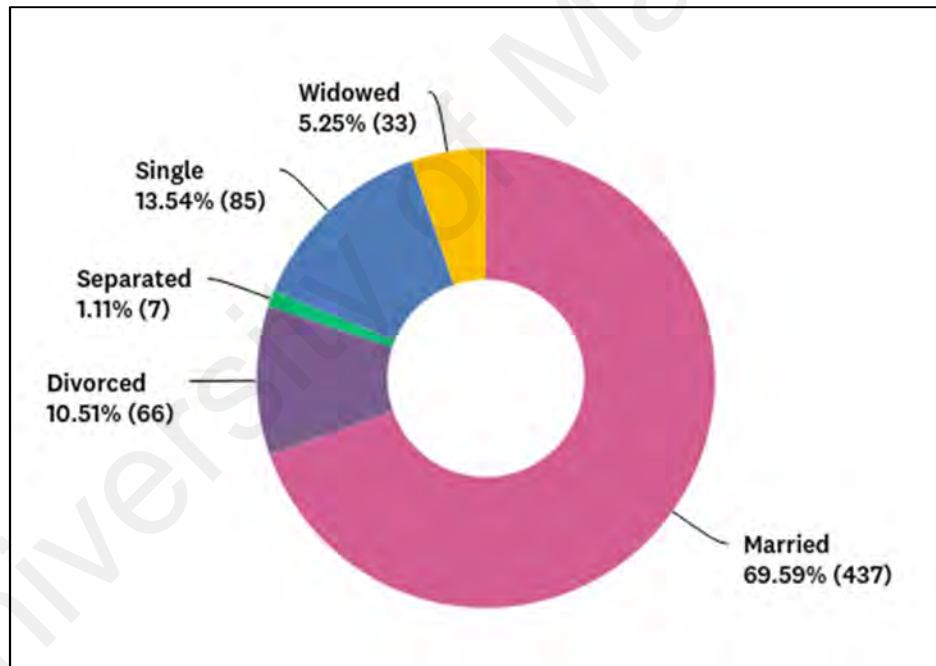


Figure 4.6: Percentage of Respondents' Marital Status

4.2.7 Frequency Distribution by Employment Status

The percentage of Respondents' Employment Status is as presented in **Figure 4.7**, with the majority of respondents doing full-time work (46.50%) and are self-employed (22.77%). The rest of the respondents are home-makers, identified as others (14.33%), unemployed, retired or studying (8.44%) and doing part-time work (7.96%).

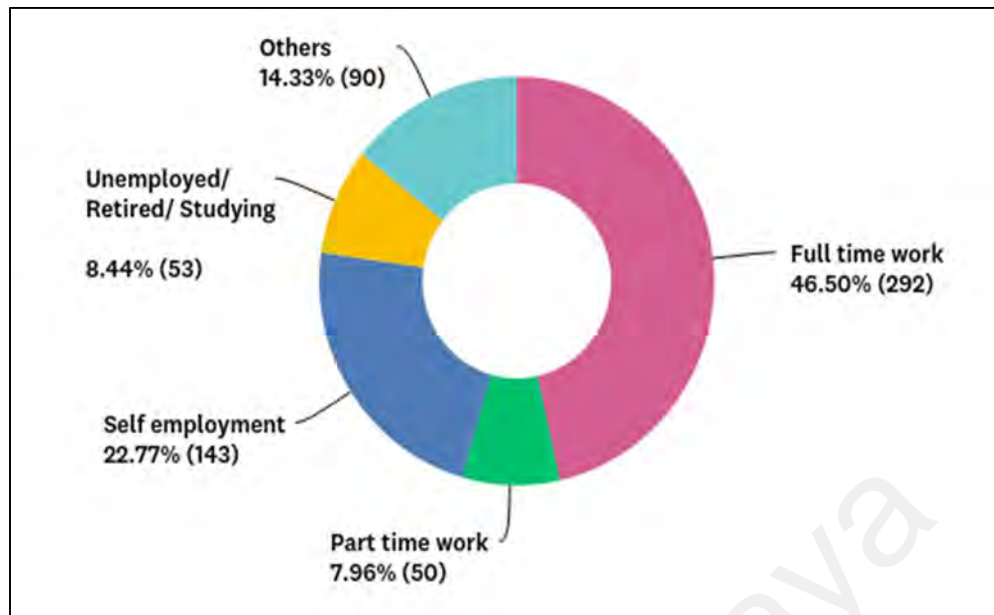


Figure 4.7: Percentage of Respondents' Employment Status

4.2.8 Frequency Distribution by Household Income Level

The respondents have disclosed their household incomes, and the majority of 60.83% earn less than MYR3,000.00 per month, equivalent to around USD707 per month. Following that, is the 29.78% of respondents earning between MYR3,001.00 to MYR5,000.00 per month, and the rest earn MYR5,001.00 to MYR10,000.00 (8.76%) and more than MYR10,000.00 (0.64%).

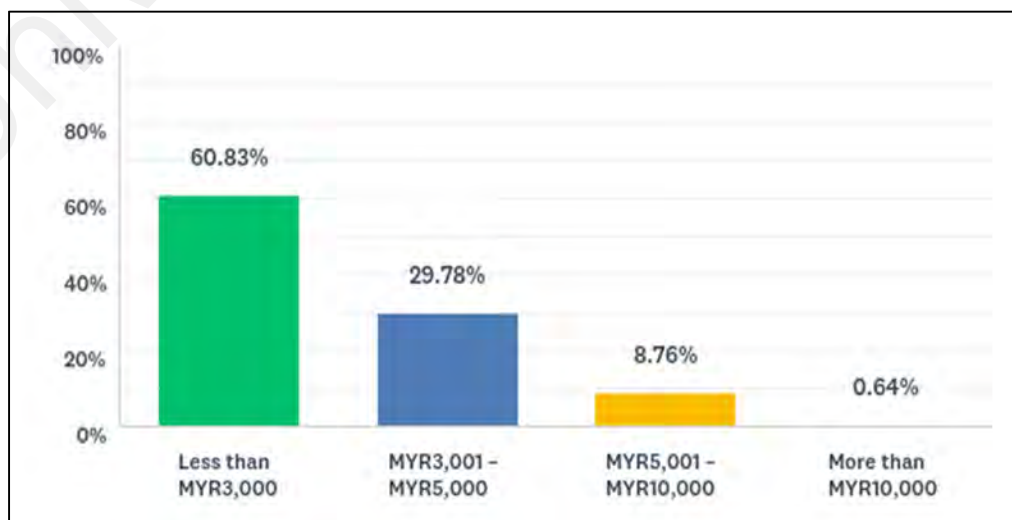


Figure 4.8: Percentage of Respondents' Household Income

The respondents chosen were from both the urban and rural areas, and this may be the reason behind the big difference in household income between the groups. Income disparity is quite distinct especially between urban and rural income earners in the country.

Table 4.3: Statistical Analysis for Household Income

N	Valid	628
	Missing	0
Mean		1.4920
Median		1.0000
Std. Deviation		.68121
Minimum		1.00
Maximum		4.00

For the household income of the respondents, displayed in **Table 4.3**, there is a small difference between the mean and the median. The mean is only of 0.4920 differences, indicating that the values are normally distributed. Most respondents earn household incomes at the lower end of the scale, with most falling below RM3,000.00 per month. However, there are a few cases, representing 0.64% of the respondents, earning RM10,000.00 and more. These high values for a small percentage of respondents have a significant effect on the mean but little or zero impact on the median. Hence, the median is a better indicator of a central propensity in this project.

4.2.9 Frequency Distribution by Leadership Traits

The Big Five Personality Traits, which identifies the effectiveness of an individual's leadership by measuring extraversion, openness to experience, agreeableness, conscientiousness, and neuroticism (McCrae & Costa, 1987), was adapted from the Cattell's ground-breaking 16 Personality Traits (Cattell & Mead, 2008). Adaptive

Leadership, which is a type of leadership that utilizes knowledge and abilities to solve problems that are the same or different from a situation in which the knowledge, skill, and disposition were first encountered (Heifetz & Laurie, 1997).

Both these leadership theories are applicable for the localization of the SDG as their utilization in real life not only suits individual levels but can also apply to other settings such as family, education system, employment types, and societies. The factor of openness to experience and adaptability play significant roles in the assimilation of SDG in the local community. Measuring the characteristics of Adaptive Leadership, combined with the Big Five Traits in Malaysian women leaders resulted in the levels of Leadership Traits that Malaysian women grassroots leader shown below.

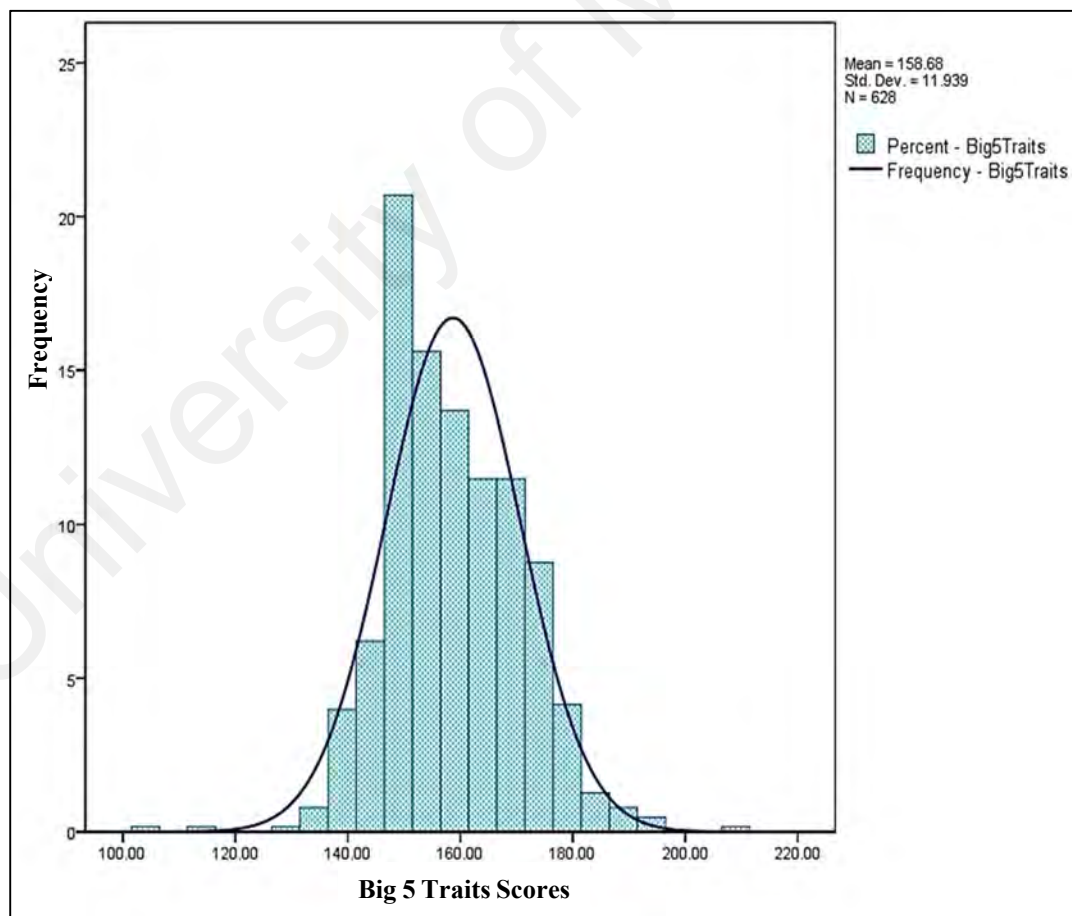


Figure 4.9: The Big Five Traits Scoring

As indicated in **Figure 4.9**, the Malaysian women grassroots leaders have an excellent overall scoring of the Big Five Traits, and good scoring at the Adaptive Leadership Qualities as shown in **Figure 4.10**.

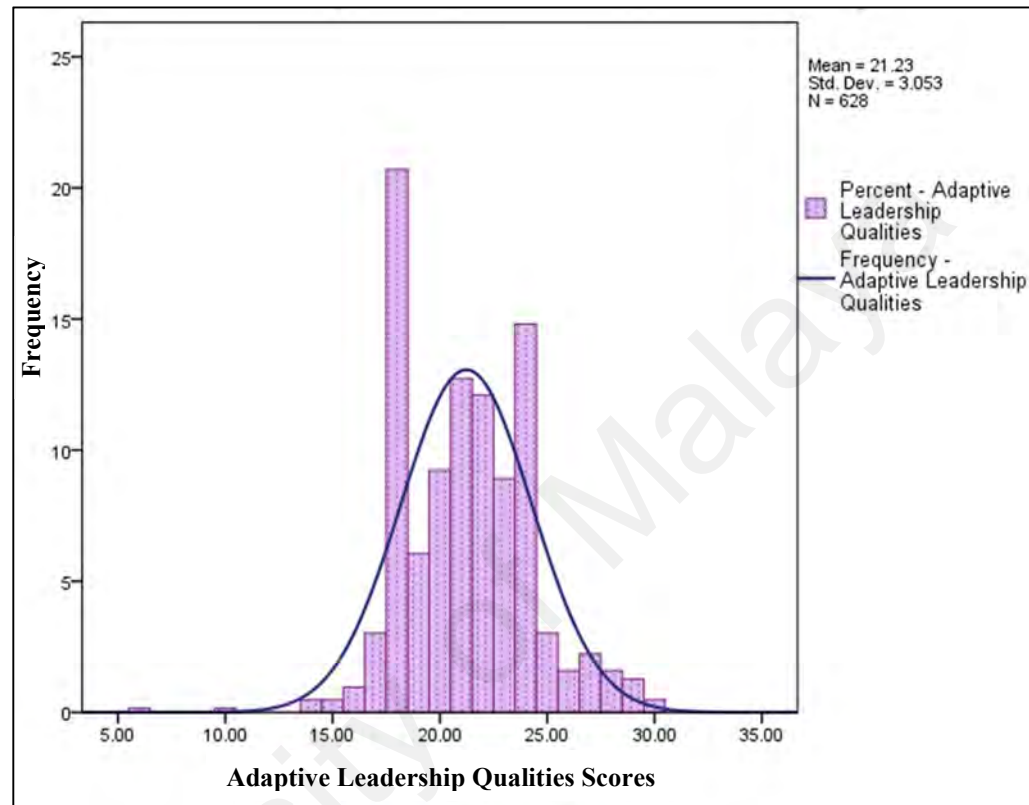


Figure 4.10: Scoring of Adaptive Leadership Qualities

To be able to see a more generalised view of leadership qualities of the women leaders, a new variable was created, called Leadership Traits, which is a combination of both the Adaptive Leadership scoring and the Big Five Traits scoring. The scoring of this is as shown in **Figure 4.11**. A few statistical analyses were done using this variable as it is more comprehensive and detailed scoring compared to each of them individually.

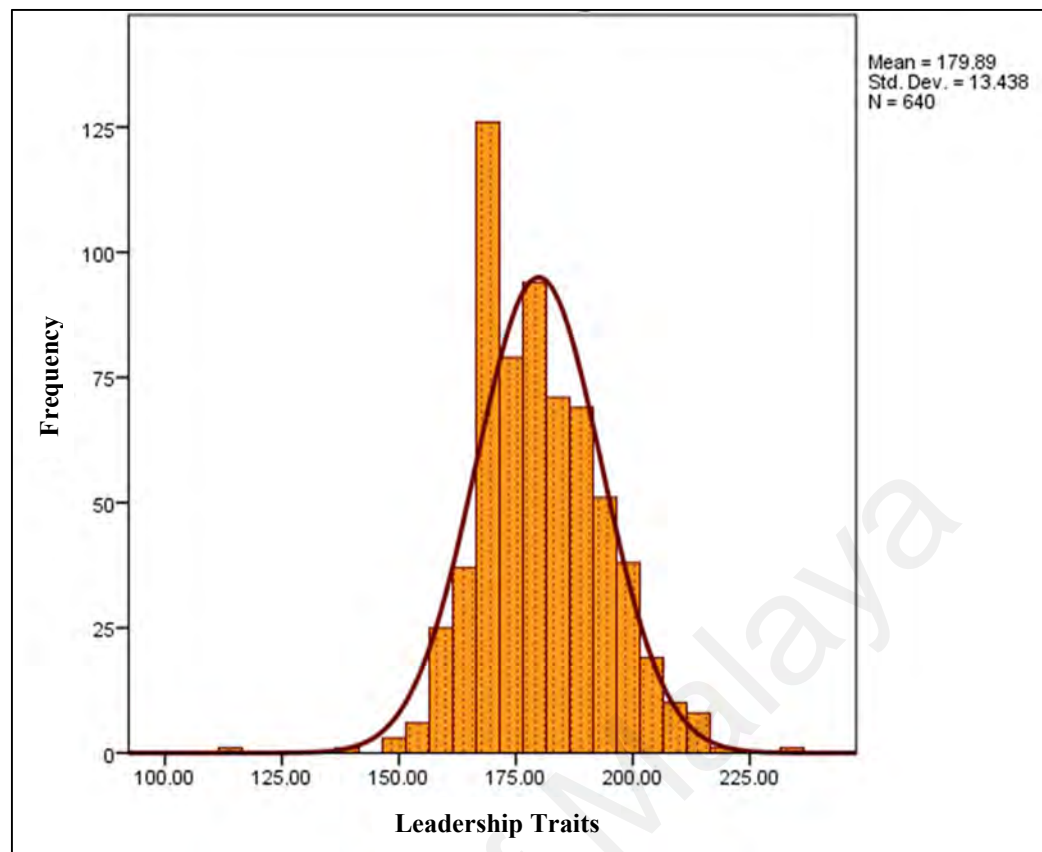


Figure 4.11: Scoring for Leadership Traits

4.3 Methods of Analysis

Issues that are to be analysed in this research are the awareness of the participants of the goals from the UN SDG, their level of existing commitment towards the goals and challenges that they may face in implementing the SDG locally. Research questions are analysed using the Guttman analysis and statistical analysis such as cross-tabulation of two variables, Multi-Regression model and ANOVA in identifying the challenges.

From the sample of Malaysian women grassroots leaders who participate in the nationwide survey, it appears that they are aged between 18 to 72 years old, with most respondents belonging in the group aged 41 to 50 years.

A cross tabulation between the age groups and the education level of the respondents, as seen in **Table 4.4** and **Figure 4.12** shows a correlation between those two factors. High school is the highest level of education for all age groups, but the stark differences as seen

between the age groups of 31-40 years old and 51-60 years old, where the difference between high school and degree level are 30 and 101 respectively. This difference shows that there is a gap generationally where education is concerned, and this relates to the country's national educational plans from the days of independence. A vast difference may mean success in the current generation's education. This also means that women leaders, especially the younger generations, realize the need for a better education.

Table 4.4: Cross tabulation of Age Groups and Education Level

		Age Category					Total
		30 & below	31 - 40	41 - 50	51 - 60	61 & above	
Edu Level	Primary Level	0	0	2	6	7	15
	Secondary Level	30	59	94	108	31	322
	Certificate/ Diploma	39	58	58	34	11	200
	Degree	20	29	20	6	1	76
	Masters	3	1	4	1	1	10
	Doctorate	1	0	2	1	0	4
	Others	0	0	0	1	0	1
Total		93	147	180	157	51	628

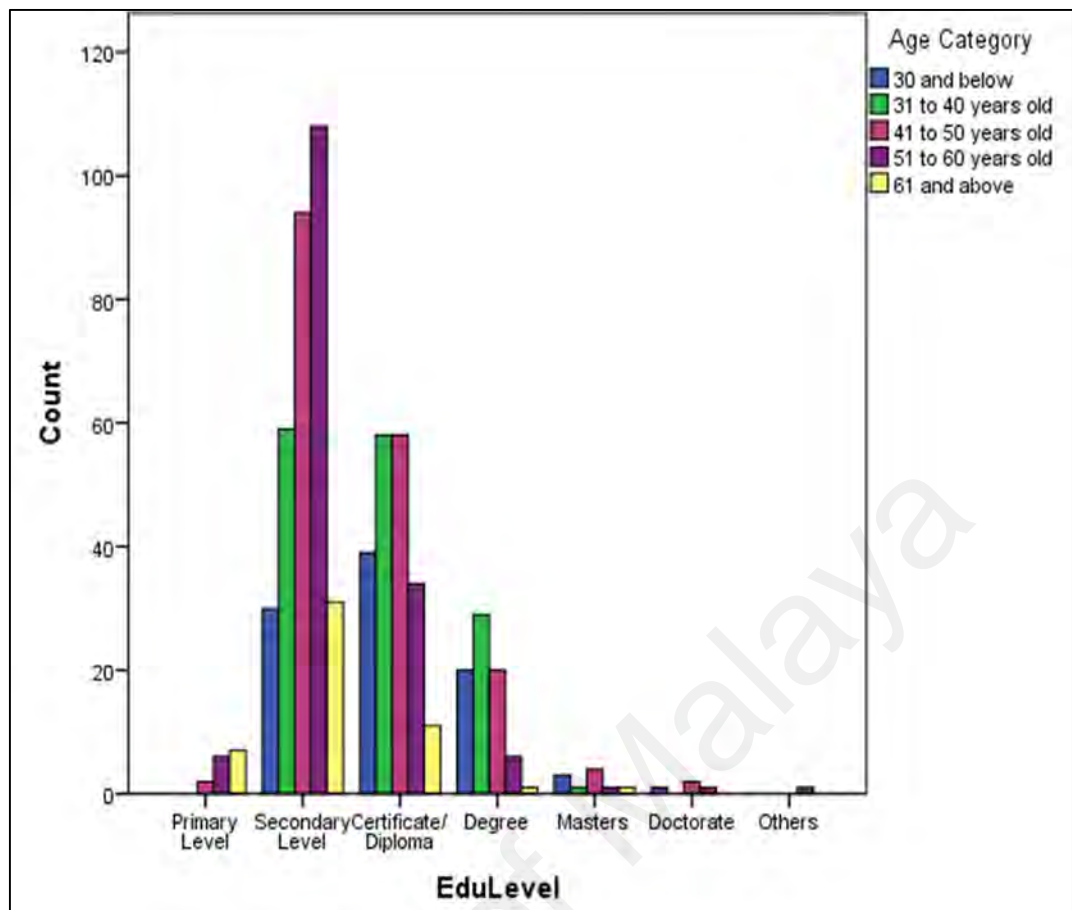


Figure 4.12: Cross-tabulation of Age Groups and Education Level

4.4 Summary of Findings

The summarization of the research is broken down into the three (3) research questions to recap all the findings and is discussed in the next chapter.

4.4.1 Are the Leaders Aware of the SDG Goals?

In analysing the first research question, depiction of the existence of Malaysian women grassroots leaders' awareness of the UN SDG is as seen in a series of questions regarding the interest of the SDG.

The questions in the survey represent all 17 of the SDG and clusters into three main groups, the growth of the economy, the advancement of social welfare and the safeguard of the environment. Statistically, the researcher labels the SDGs as seen in **Table 4.5**.

Table 4.5: SDG Interest in the Implementation of SDG

No.	SPSS Label	SDG	Frequency	Percentage
1	SDeco1	Decent Work & Economic Growth	393	62.58
2	SDeco2	Industry, Innovation & Infrastructure	307	48.89
3	SDeco3	Sustainable Cities & Communities	342	54.46
4	SDeco4	Partnerships for Sustainable Development	282	44.90
5	SDsoc1	No Poverty	379	60.35
6	SDsoc2	Zero Hunger	215	34.24
7	SDsoc3	Good Health & Well-Being	349	55.57
8	SDsoc4	Quality Education	292	46.50
9	SDsoc5	Gender Equality	263	41.88
10	SDsoc6	Clean water & Sanitation	218	34.71
11	SDsoc7	Affordable & Clean Energy	168	26.75
12	SDsoc8	Reduced Inequalities	221	35.19
13	SDsoc9	Peace, Justice & Strong Institutions	248	39.49
14	SDenv1	Responsible Consumption & Production	177	28.18
15	SDenv2	Climate Action	130	20.70
16	SDenv3	Life Below Water	98	15.61
17	SDenv4	Life on Land	104	16.56

As highlighted in the table above, four of the goals with the highest frequencies are “Decent Work and Economic Growth” with 393 respondents showed interest equivalent to 62.58% out of all the 628 respondents; “No Poverty” with 379 respondents (60.35%); “Good Health and Well-Being” with 349 respondents (55.57%); and “Sustainable Cities and Communities” with 342 respondents (54.46%).

The goals with the least frequencies are “Climate Action” with 130 respondents (20.7%), “Life on Land” with 104 respondents (15.56%) and “Life Below Water” with only 98 respondents’ equivalent to 15.61%.

A summary of sustainable development activities that the respondents are interested in are, as presented in **Table 4.6** and **Figure 4.13**. The question involves multiple responses (“Check all that apply” questions), and the dataset is codes as dichotomies. In this case, quite similarly to the SDGs implemented, the highest number of answers are given to the Social Progress and Welfare category, where 92.7% of all the respondents answered that they have the interest to implement at least one activity in that category. It

continues with 88.9% of respondents interested in the Economic Growth Activities and bringing up the rest of 37.7% engaged in Environmental activities.

Table 4.6: Case Summary for Respondent's Interest in SDG

	Cases					
	Valid		Missing		Total	
	N	Per cent	N	Per cent	N	Per cent
\$SDGeconomyInterest ^a	558	88.9%	70	11.1%	628	100.0%
\$SDGsocialInterest ^a	582	92.7%	46	7.3%	628	100.0%
\$SDGenvironmentInterest ^a	237	37.7%	391	62.3%	628	100.0%
a. Dichotomy group tabulated at value 1.						

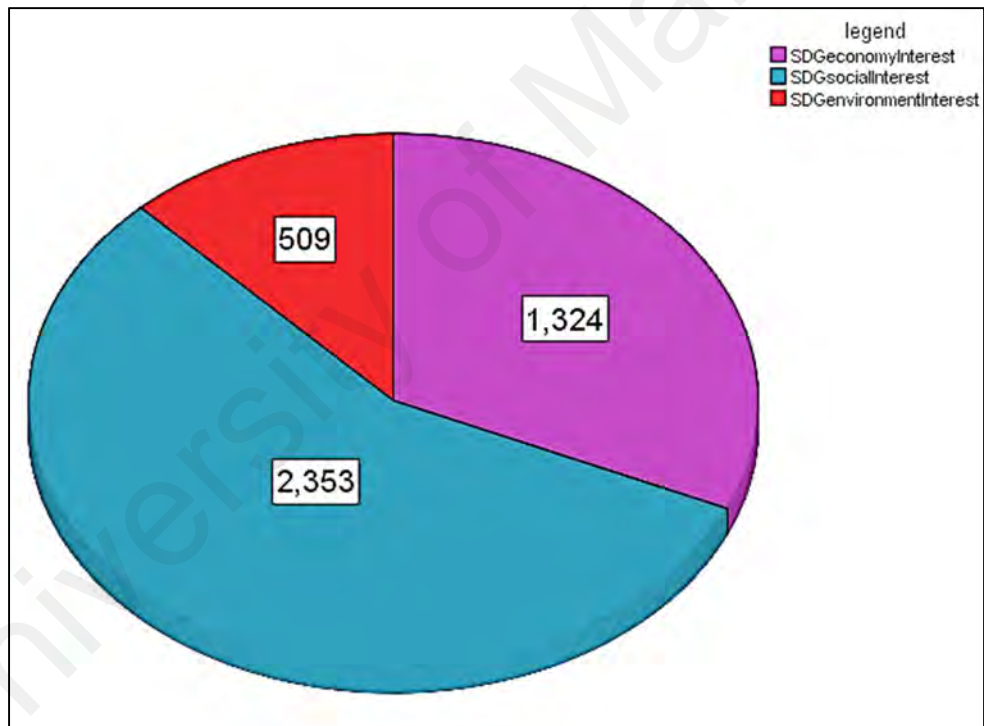


Figure 4.13: Summary of Interest in Sustainable Activities

The cumulative percentage was consequently plotted on a Pareto chart, and the SDGs that fall to the left of the Pareto line (blue dotted line) are the “vital few” goals that show the most significant causes of SDG awareness in the respondents as seen in **Figure 4.14**.

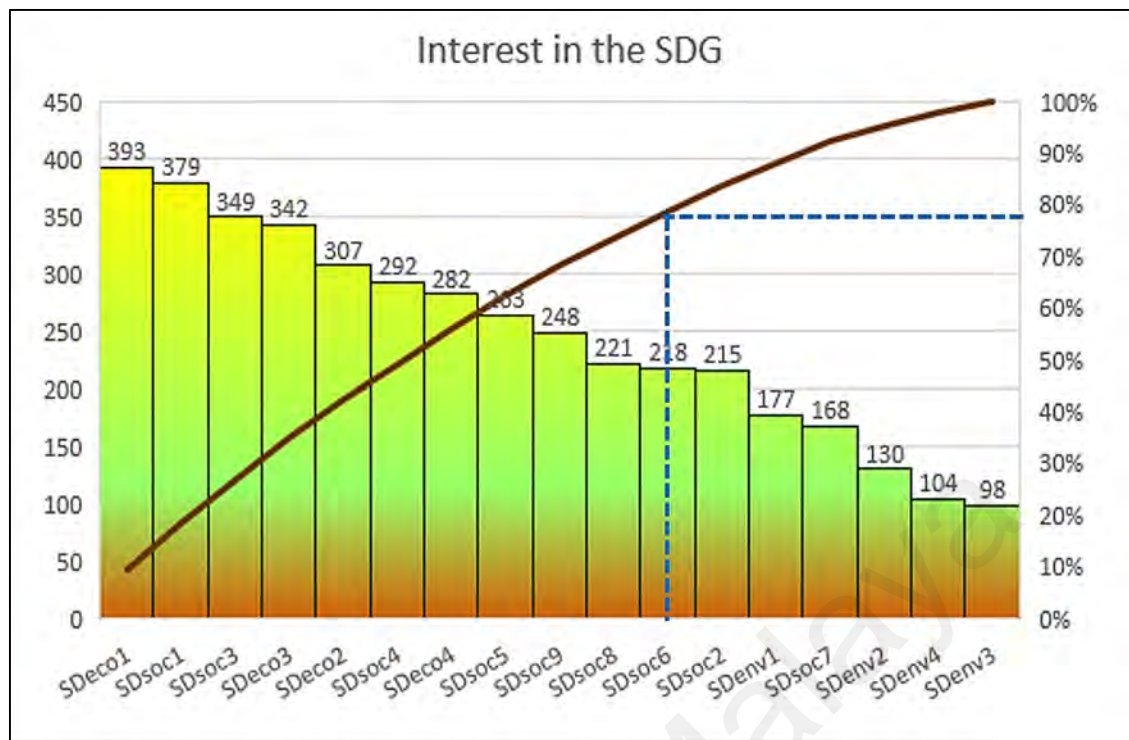


Figure 4.14: Participants' Interest in the SDG

To identify the “vital few”, the researcher applies the 80/20 rule. Eleven out of all 17 goals are vital and seems to suggest are a high probability of confirming the research question. It may reflect that the Malaysian grassroots women leaders are very much aware of the UN SDG. Therefore, the few goals in the order of most vital for respondents as displayed in **Table 4.7**.

Table 4.7: Most Vital Few Goals in SDG Awareness

No.	SPSS Label	SDG
1	SDeco1	Decent Work & Economic Growth
2	SDsoc1	No Poverty
3	SDsoc3	Good Health & Well-Being
4	SDeco3	Sustainable Cities & Communities
5	SDeco2	Industry, Innovation & Infrastructure
6	SDsoc4	Quality Education
7	SDeco4	Partnerships for Sustainable Development
8	SDsoc5	Gender Equality
9	SDsoc9	Peace, Justice & Strong Institutions
10	SDsoc8	Reduced Inequalities
11	SDsoc6	Clean water & Sanitation

4.4.2 Is the Women Leaders' Commitment Towards SDG Goals Reflected in Their Actions?

Analysing the second research question involves the examination of survey questions on the SDG related activities previously implemented by the women leaders in their locality. The results of this are as highlighted in **Table 4.8** below.

Table 4.8: SDG Activities Implemented

No.	SPSS Label	SDG	Frequency	Percentage
1	SDeco1-done	Decent Work & Economic Growth	262	41.72
2	SDeco2-done	Industry, Innovation & Infrastructure	179	28.50
3	SDeco3-done	Sustainable Cities & Communities	192	30.57
4	SDeco4-done	Partnerships for Sustainable Development	192	30.57
5	SDsoc1-done	No Poverty	362	57.64
6	SDsoc2-done	Zero Hunger	218	34.71
7	SDsoc3-done	Good Health & Well-Being	405	64.49
8	SDsoc4-done	Quality Education	262	41.72
9	SDsoc5-done	Gender Equality	234	37.26
10	SDsoc6-done	Clean water & Sanitation	190	30.25
11	SDsoc7-done	Affordable & Clean Energy	117	18.63
12	SDsoc8-done	Reduced Inequalities	173	27.55
13	SDsoc9-done	Peace, Justice & Strong Institutions	246	39.17
14	SDenv1-done	Responsible Consumption & Production	139	22.13
15	SDenv2-done	Climate Action	88	14.01
16	SDenv3-done	Life Below Water	72	11.46
17	SDenv4-done	Life on Land	59	9.39

As highlighted in the table above, four of the goals with the highest frequencies for SDG activities previously implemented in the respondents' locality, is "Good Health and Well-Being" with 405 out of all 628 respondents (64.49%) revealed that they have implemented activities related to this SDG, "No Poverty" represented by 362 respondents (57.64%), "Decent Work and Economic Growth" with 262 respondents (41.72%) and "Quality Education" with 262 respondents (41.72%).

The goals with the least frequencies are “Climate Action” with 88 respondents (214.01%), “Life Below Water” with 72 respondents (11.46%) and “Life on Land” with only 59 respondents’ equivalent to 9.39%.

Table 4.9: Case Summary for SDG Implemented

	Cases					
	Valid		Missing		Total	
	N	Per cent	N	Per cent	N	Per cent
\$SDGeconomyDone ^a	431	68.6%	197	31.4%	628	100.0%
\$SDGsocialDone ^a	598	95.2%	30	4.8%	628	100.0%
\$SDGenviromentDone ^a	185	29.5%	443	70.5%	628	100.0%
a. Dichotomy group tabulated at value 1.						

A summary of sustainable development activities implemented by the respondents is as presented in **Table 4.9**. As the question questionnaire involves multiple responses (“Check all that apply” questions), the dataset codes as dichotomies. As apparent in the case study done, activities that have already been implemented by the target groups are mostly in line and are towards achieving the same objectives and targets as the SDGs.

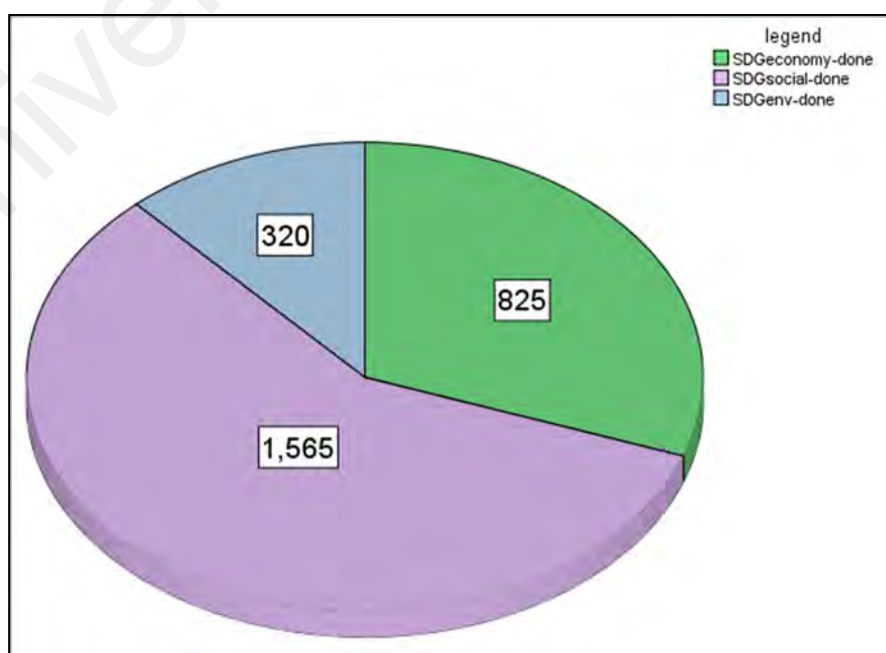


Figure 4.15: Summary of Sustainable Activities Previously Implemented

Divided into three (3) categories (**Figure 4.15**), the most significant percentage of programs previously implemented by the respondents were from the Social Progress and Welfare categories with 95.2% of all respondents chose at least one of the activities within the group, followed by the Economic Growth Activities, 68.6% of all respondents picked at least one of the activities. Environmental Protection activities were the least implemented type with only 29.5% of all respondents mentioned that they had achieved at least one of the corresponding action.

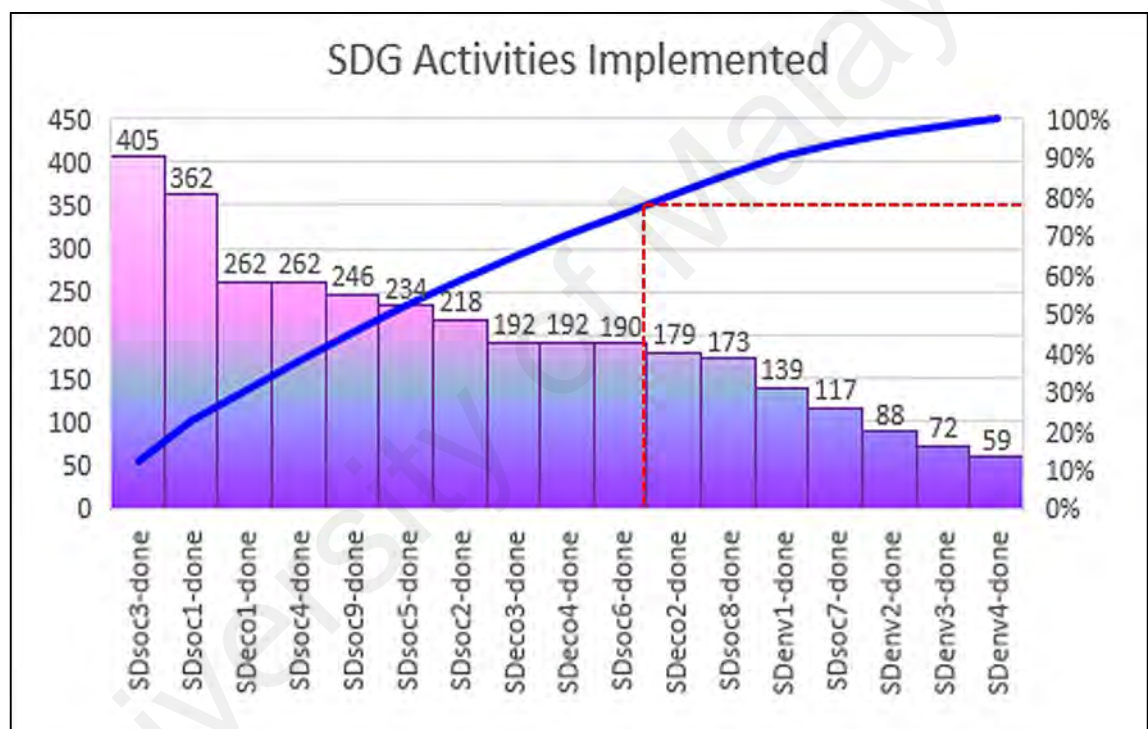


Figure 4.16: SDG Related Activities Implemented

The cumulative percentage was plotted on a Pareto chart as seen in **Figure 4.16**. To again, identify the “vital few”, the researcher applies the 80/20 rule. The SDGs that fall to the left of the Pareto line (blue dotted line) drawn in Figure 4.10 are the “vital few” goals that show the most significant commitment of SDG from the respondents. Ten out of all 17 goals are vital and seems to suggest a high probability of confirming the research question. It may reflect an unusually high existing commitment from the Malaysian

grassroots women leaders, in their actions relating to the UN SDG. Therefore, the **Table 4.10** displays the goals in the order of most vital for respondents.

Table 4.10: Most Vital Few Goals in SDG Commitment

No.	SPSS Label	SDG
1	SDsoc3-done	Good Health & Well-Being
2	SDsoc1-done	No Poverty
3	SDeco1-done	Decent Work & Economic Growth
4	SDsoc4-done	Quality Education
5	SDsoc9-done	Peace, Justice & Strong Institutions
6	SDsoc5-done	Gender Equality
7	SDsoc2-done	Zero Hunger
8	SDeco3-done	Sustainable Cities & Communities
9	SDeco4-done	Partnerships for Sustainable Development
10	SDsoc6-done	Clean water & Sanitation

From the analysis of sustainable development activities previously implemented by the women leaders in their locality, the very high percentages of frequencies in specific events may reflect the needs of their community. However, it suggests a very high level of commitment of the SDG as there are already track records of activities done, as disclosed in the survey, which was directly in line and consistent with the 17 UN SDG.

4.4.3 What Are the Challenges That the Leaders Face in Implementing the Goals?

The analysis was done on several variables to see if there were any correlation and significance of the variables, resulting in challenges faced by the Malaysian women grassroots leader in implementing the SDG locally.

4.4.3.1 Leadership Trait and Interest in SDG

A hypothesis was tested to see if Leadership Traits are one of the challenges faced in implementing the goals. The hypothesis is “There is a correlation between Leadership Traits and the Interest in SDG”, and the null hypothesis is “There is no correlation between Leadership Traits and the Interest in SDG”.

The implementation of the first test involved the variables of Leadership Traits and SDG Interest. The test was to see if there is any correlation between the two variables. If there is a correlation, it would suggest that Leadership Traits is one of the challenges faced by the women leaders in implementing the SDG.

A descriptive statistic of leadership’s traits and the SDG interest are as shown in **Table 4.11**. The results demonstrate the analytical outcome for both variables from the whole sample. The first row shows the level of leadership traits identified by the accumulative scoring of the Big Five Traits and Adaptive Leadership Qualities of respondents from the questionnaire. The respondents achieved a minimum score of 114 and a maximum of 234, showing an excellent understanding of leadership effectiveness.

Table 4.11: Descriptive Statistics for Leadership Traits and SDG Interest

	N	Mean	Std. Deviation	Minimum	Maximum
LeadershipTraits	628	179.9124	13.50552	114.00	234.00
SDGinterest	628	6.6656	4.47530	3.00	17.00

The second row shows an accumulative number of SDG that was of interest to the respondents. The respondents chose at least three, and a maximum of 17 of the listed SDGs. The Mean column shows the average number of Leadership Traits Scoring (179.9124) and the average number of SDG chosen of interest to the respondents (6.6656). There may be a correlation of the low means between the two variables, where

a less knowledgeable leader will not be as interested in learning new experience even if they are already implementing activities in line with the SDGs.

The chi-square test measures the discrepancy between the observed number of response and what is expected if the variables were unrelated. The two-sided *asymptotic significance* of the chi-square statistic, as seen in **Table 4.12**, is smaller than 0.10, but in a Likelihood Ratio and the Linear-by-Linear Association, it is more significant than 0.10. The conclusion is that the differences in choices within variables are not due to chance variation, which then, implies that each respondent with different leadership trait scoring, presents different preferences in interest for the SDG.

Table 4.12: Chi-Square Tests for Leadership Traits and SDG Interest

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	111.651 ^a	84	.024
Likelihood Ratio	99.829	84	.115
Linear-by-Linear Association	.021	1	.885
N of Valid Cases	628		
a. 78 cells (74.3%) have expected count less than five. The minimum expected count is .00.			

Table 4.13 shows variance estimates for each of the variance factors. $\text{Var}(\text{LeadershipTraitsRange}) = -0.127$ in this table, and $\text{Var}(\text{Error}) = 20.104$. Therefore, the Leadership Traits effect explains $-0.127 / (-0.127 + 20.104) = 0.64\%$ of the random variation. Error accounts for the 99.36% of the random variation. Most of the variation is due to a chance error even though the Leadership Traits play a part in the random variation in the number of SDG interest is as shown.

Table 4.13: Variance Estimates for Leadership Traits and SDG Interest

Component	Estimate
Var (LeadershipTraitsRange)	-.127 ^a
Var (Error)	20.104
Dependent Variable: SDGinterest Method: ANOVA (Type III Sum of Squares)	
a. For the ANOVA methods, negative variance component estimates may occur. Some possible reasons for this circumstance are: (a) the specified model is not the correct model, or (b) the actual value of the variance equals zero.	

The ANOVA methodology as illustrated in **Table 4.14** estimates the variance components by comparing the expected mean squares of the random effects to the observed mean squares. **Table 4.15** shows information about the expected mean squares. The expected mean squares of LeadershipTraitsRange is: $EMS(LeadershipTraitsRange) = 62.412 \times Var(LeadershipTraitsRange) + Var(Error)$. The observed mean square for LeadershipTraitsRange is 12.166. The observed mean square for Error is 20.104. The observed mean squares equate to the expected mean squares, and the variance solved to find the variance estimates displayed in the Variance Estimates table.

Table 4.14: ANOVA table for Leadership Traits and SDG Interest

Source	Type III Sum of Squares	df	Mean Square
Corrected Model	72.993	6	12.166
Intercept	561.040	1	561.040
LeadershipTraitsRange	72.993	6	12.166
Error	12484.784	621	20.104
Total	40460.000	628	
Corrected Total	12557.777	627	
Dependent Variable: SDGinterest			

Table 4.15: Expected Mean Squares for Leadership Traits and SDG Interest

Source	Variance Component		
	Var (LeadershipTraitsRange)	Var (Error)	Quadratic Term
Intercept	2.284	1.000	Intercept
LeadershipTraitsRange	62.412	1.000	
Error	.000	1.000	
<ul style="list-style-type: none"> • Dependent Variable: SDGinterest; • Expected Mean Squares are calculated based on Type III Sums of Squares; and • For each source, the expected mean square equals the sum of the coefficients in the cells times the variance components, plus a quadratic term involving effects in the Quadratic Term cell. 			

For LeadershipTraitsRange, $12.166 = 62.412 \times \text{Var}(\text{LeadershipTraitsRange}) + \text{Var}(\text{Error})$. For Error, $20.104 = \text{Var}(\text{Error})$. Solving the variance yields: $\text{Var}(\text{Error}) = 20.104$. $\text{Var}(\text{LeadershipTraitsRange}) = -0.127$. Demonstrated are the solutions in the variance estimates table.

Hence, the expected mean square is a negative number and do not have variance equality compared to the observed mean of 12.166. This finding rejects the null hypothesis that the group variances are equal.

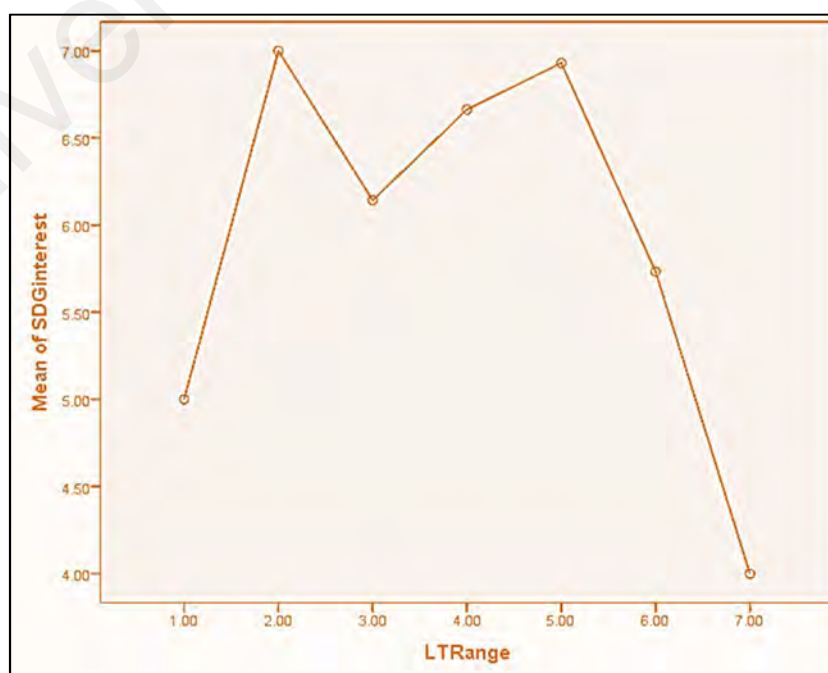


Figure 4.17: One-way ANOVA Means Plot for Leadership Traits & SDG Interest

The means plot seen in **Figure 4.17**, shows that respondents in the middle-lower and middle-upper range of the Leadership Traits Scoring had a higher level of Interest in Implementing the SDGs in their locality compared to the other respondents. This suggests that there may be a correlation between the two variables despite the ANOVA results. Thus, further tests need to be explored.

4.4.3.2 Other Prominent Factors

The research then continued to analyze other prominent factors that may affect the localization of the SDG, hence becoming a challenge for the women leaders. From the survey questions, variables identified and analyzed are demographic variables and other variables such as race, religion, marital status, education level, employment status, leadership traits, organizational roles, gender sensitization, co-operations managed, perception of existing power dynamics, SDG activities implemented, challenges faced, access to social media and access to Information and Communications Technology (ICT).

Using linear regression to predict a continuous dependent variable from more than one continuous independent variables was what the researcher tried to achieve. Predicting a correlation between Interest in Implementation of SDG with various other variables, which are the educational level of respondents, leadership traits, SDG activities previously implemented, the perception of the power dynamics that exist and gender sensitization as seen in **Table 4.16**.

Table 4.16: Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	EduLevel, LeadershipTraits, SDGdone, PowerDynamics, GenderSensitization ^b	Race, Religion, Marital_status, Employment_Status, Co-operations_managed, programs_implemented, challenges_faced, IT_access, organisational_roles	Enter
a. Dependent Variable: SDGinterest			

Checking the model fit, the ANOVA analysis in **Table 4.17** came up with a significant F statistic of 52.965, indicating that the utilization of this model is an improvement compared to guessing the mean.

Table 4.17: ANOVA table for Linear Regression

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3750.004	5	750.001	52.965	.000 ^b
	Residual	8807.773	622	14.160		
	Total	12557.777	627			
a. Dependent Variable: SDGinterest						
b. Predictors: (Constant), EduLevel, LeadershipTraits, SDGdone, PowerDynamics, GenderSensitization						

The regression model is great at representing the suitability of various variables as predictors. **Table 4.18** shows a high value of R suggesting an excellent diversity with nearly half of the variables represented and explained by the model.

Table 4.18: Model Summary for Linear Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.546 ^a	.299	.293	3.76303
a. Predictors: (Constant), EduLevel, LeadershipTraits, SDGdone, PowerDynamics, GenderSensitization				

The model fit displayed seems promising, but some predictors may be non-significant coefficients in the model. It looks as if there are variables that do not contribute much to the model compared to other variables. LeadershipTraits and SDGdone are the two variables that have the lowest number of the standard error; however, looking at the standardized coefficients column, the variable SDGdone essentially have the most significant impact of all, 0.537, highest even compared to the other variables.

Another part of the coefficients **Table 4.19** displays what may be a problem with multicollinearity. Most of the predictors show a sharp decline of values of the partial and part correlation compared to the zero-order correlation.

Table 4.19: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	4.905	2.138		2.294	.022					
Leadership Traits	-.008	.012	-.023	-.662	.508	.026	-.027	-.022	.907	1.103
SDGdone	.624	.040	.537	15.704	.000	.543	.533	.527	.964	1.038
GenderSensitization	.056	.050	.048	1.115	.265	.087	.045	.037	.597	1.676
PowerDynamics	-.107	.089	-.052	-1.209	.227	-.030	-.048	-.041	.613	1.631
EduLevel	.074	.089	.028	.830	.407	.057	.033	.028	.978	1.022
a. Dependent Variable: SDGinterest										

What this entails is that most of the variance in SDGinterest (Interest in the Implementation of SDG) that was explained by the Leadership Traits variable is also able to be defined by other variables.

Also, on the table, is the tolerance level, presenting the variance in any specific predictor that is unexplainable by other predictors? Hence, the tolerances show that the other predictors can explain 5% - 40% of the variance in any predictor. When the tolerances are close to 1, it is clear that there is low multicollinearity and the standard error of the regression coefficients will then be deflated. A variance inflation factors bigger than two is usually considered as problematic, and the most significant VIF value in the table is 1.676. Therefore, the variance inflation factors are all within the acceptable range. This indicates that we do not have a problem with multicollinearity in this set of variables.

In conclusion to this analysis, the three most prominent factors that affect the localization of the SDG using linear regression analysis are implemented SDG activities (SDGdone), Leadership Traits and gender awareness.

4.4.3.3 Perception of Challenges Faced

There were also specific questions included in the survey on the challenges faced by the respondents. The respondents were asked to identify what problems did they meet during the implementation of SDG related activities, and the challenges were as shown in **Table 4.20**. The highest percentage of challenges identified is “Lack of Funds” with an overwhelming frequency of 524, which means that 83.44% of the respondents agree that this is a challenge for them in implementing the SDG locally. The second highest challenge is the “Lack of Workforce” with a frequency of 304 equivalents to 48.41% of the respondents agreeing that this is one of the challenges that they have faced during the localization of SDG. Other top challenges identified include “Lack of Motivation”, 42.68% or 268 respondents chose this as their challenge, “Lack of Information” 42.04% or 264 respondents; “Lack of Planning”: 41.72% or 262 respondents; and “Lack of Cooperation from Agencies” with 38.22%, equivalent to 240 out of 628 respondents identified this as the challenge they faced during the localization of SDG.

Table 4.20: Summary of Challenges in Implementing SDG Locally

No.	Challenges	Frequency	Percentage
1	Lack of Motivation	268	42.68
2	Lack of Funds	524	83.44
3	Lack of Information	264	42.04
4	Lack of Workforce	304	48.41
5	Lack of Planning	262	41.72
6	Lack of Experts	229	36.46
7	Lack of cooperation from agencies	240	38.22
8	Political Interference	108	17.20
9	Others	37	5.89

From a Pareto chart plotted with the cumulative percentage of the challenges faced, in **Figure 4.18**, the “vital few” goals that show the biggest challenge to localizing the SDG are lack of funds, lack of workforce, lack of motivation, lack of information, lack of planning and lack of cooperation from agencies.

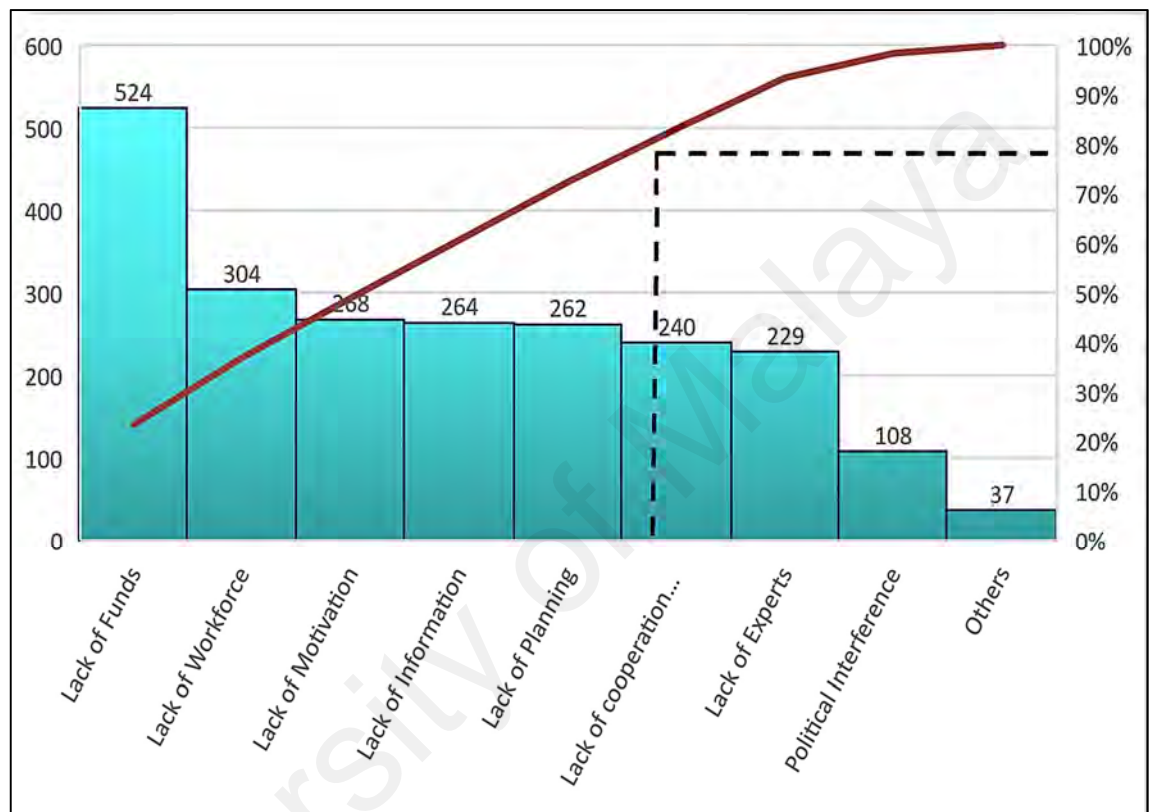


Figure 4.18: Challenges in Implementing SDG Locally

CHAPTER 5: DISCUSSIONS AND CONCLUSION

This research aims at highlighting Malaysian women grassroots leaders' forte in localizing the SDG, explores the women leaders' awareness and their show of commitment towards the UN SDG. Challenges in the implementation also need exploration, inclusive of awareness and the commitment to the goals. This chapter will put together the key findings and conclusion of the research, managerial and policy implications of the results, including the suggestions for the implementation of further research.

5.1 Key Findings and Conclusion

The key findings of the research are discussed based on the research questions and summarised at the end of the chapter with a look at the managerial and policy implications of the findings, a suggestion of a way forward for the related research topic, and a conclusion for the whole research.

5.1.1 Awareness of the SDG

Awareness of the SDG indicates knowledge of an existing tool that may be utilized to develop a community further. The SDG as a tool is adapted successfully in some countries. Therefore, the testing done reflects the success of the SDG as a tool for development, and the only challenge left is adapting them to the local community. Even so, awareness of the goals is a huge first step in the successful localization of SDG in Malaysia.

The four goals with the highest frequency selected by the respondents are “Decent Work and Economic Growth” (62.58%), “No Poverty” (60.35%), “Good Health and Well-Being” (55.57%) and “Sustainable Cities and Communities” (54.46%).

5.1.1.1 Awareness of Decent Work and Economic Growth

Goal 8 of the SDG is to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. In line with the country's declining Labour Force Participation Rate from 67.9% in 2015 to 67.7% in 2016, and the increase of the country's unemployment rate from 3.1% in 2015 to 3.4% in 2016 (Department of Statistics Malaysia, 2017), the respondents of the survey have every reason to be concerned about decent work and economic growth. For this goal, the Malaysian government has set out to achieve 12 targets, identified by 17 indicators nationwide (Department of Statistics Malaysia, 2017).

The very high percentage of respondents, who chose Goal 8 as their primary interest in the SDG, may very well be interested in achieving the targets set by the government. It is of the opinion of this researcher that, for the Malaysian community at the grassroots level, the most relevant and urgent targets to be met are:

- Target 8.5: Achieve full and productive employment and decent work for all women and men, inclusive of young people and people with disabilities, and also equal pay for work of equal value;
- Target 8.6: Reduce the proportion of youth not in employment, education or training;
- Target 8.9: Promote sustainable tourism that creates jobs and boosts local culture and products; and
- Target 8.10: Reinforce the capabilities of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all.

Malaysia has 409,269 Persons with Disabilities (PWD) registered in 2016 with the Department of Social Welfare. The disabilities enrolled include visually impaired, hearing, physical, learning disability, speech, mental and others. Out of all the records, 235,781 PWDs or equivalent to 57.61% are of productive age (19 to 59 years old)

(Department of Statistics Malaysia, 2017). These people are from all the states in the country and are looking for equality in job opportunities and decent work. These, along with many youths in both the urban and rural areas in Malaysia, seek employment and equal pay for the equal amount of work in the nation.

There was also a high number of cases of youths getting into all sorts of trouble, drug-related in most rural areas, and gang-related violence in urban areas of the country. It is therefore entirely relevant that this goal is the primary concern for most of the Malaysian women leaders at the grassroots level, as unemployment is the critical issue in most of the social problems here in the country.

5.1.1.2 Awareness of the need to Eradicate Poverty

Reflected in the respondents' answers are also the perception of the country's economic uncertainty and the situation of the respondents' local community. Rural and urban poverty is still in existence, and the growing concern on this matter is well justified. Even as Malaysia declared zero hard-core poverty back in 2010, the fact of the matter is, relative poverty is still at large. With a vast number of factors that may lead a family into debt, such as sudden loss of a source of income, or a sudden loss of life of the primary breadwinner for a family, relative poverty monitored by the various Ministries and agencies in the country.

Malaysia has dramatically reduced the poverty rate from 49.3% in 1957 to 0.6% in 2014 (Department of Statistics Malaysia, 2017). Malaysia's rural and urban poverty eradication policies implemented include income-generating programs, such as micro-financing and career development, skills enhancement programs, education and training, job placements, advocacy, subsidies, transition/ reintegration into the workforce, and essential amenities, such as housing for the poor.

The programs are targeted at the low-income households, marginalised and vulnerable groups. Since 2010, the focus has also included the B-40 group, which represents the 40% of the population with the lowest earning capacity both in rural and urban areas of the country.

There are urgent needs for concentration on this Eradication of Poverty goal as it is not only about the eradication of existing poor or hard-core poor status, but it should also centre on the prevention of poverty.

As highlighted in Targets 1.3 and 1.5 in **Table 4.5**, there is a need to address the vulnerability of the people thoroughly. Malaysia, with the changing of seasons that brings flash floods and scorching temperatures, have, in the past caused devastation to its people. Communities lost everything in the blink of an eye, and whole communities turned hard-core poor.

Echoing from tragedies like these, Malaysian women leaders show great concern for SDG on eradicating poverty. The social protection system needs to be in place as tragedies are often unpredictable and can happen to anyone. Strengthening the vulnerable group's resilience will also ensure the survival of the community. To survive and learn from a climate-related event we need to relocate or have the active support from various agencies. This support will, in turn, ensure a more secured community for future generations.

5.1.1.3 Awareness of Good Health and Well-Being

Good Health and Well-Being were one of the highest SDG chosen by the respondents. The choice made by the respondents reflects a good sense of understanding of the needs of the community, either as a whole or for smaller units within the community.

Malaysian rural communities, in particular, have a widespread epidemic of drug abuse, in places such as rural fisherman villages in many states of the country. There were

various efforts implemented in eradicating this issue, but more effort is needed. Creating mindfulness of the dangers of substance abuse, and other related health issues are necessary to curb the epidemic, as some are not even reporting most incidents as it is regarded as a norm in specific communities.

Universal health coverage and quality of health services in the country certainly have room for improvements. As some health providers provide excellent facilities, and others are below par, it indeed is not equal treatment for all. Therefore, the interest in the SDG of Good Health and Well-Being are very relevant at the community level. This interest shows excellent awareness of the SDG and also awareness of the needs of the community.

5.1.1.4 Awareness of Sustainable Cities and Communities

Malaysia's ever-increasing number of population and high population of the urban communities reflects the high demands of sustainable cities, especially the need for proper urbanization and improved transportation systems.

The Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) or previously known as the Ministry of Science, Technology and Innovation (MOSTI) has increasingly included Science, Technology and Innovation (STI) into the lives of Malaysian by promoting and enculturating STI into the community, energising Malaysia's industries to strengthen commercialization of Research and Development products, and widely developing talents and innovation towards the latest STI developments such as foresight technology, biotechnology and Smart Cities (Ministry of Science, Technology and Innovation, 2016).

The increasing awareness of the importance of STI reflects not only the awareness of the Malaysian community of the need for sustainable cities, but it also reflects the country's leadership and the government's recognition of it.

5.1.1.5 Other SDGs

The goals with the least number of frequencies are not any less important for the respondents, in fact, the awareness on all the SDGs was exhibited by the respondents as there were no SDG that was of zero frequency from the survey. The respondents simply chose what they think was the most urgent need of their community at that particular moment, in line with what they, as the grassroots leader believe that must prioritize accordingly.

The goals with the least number of frequencies were SDG 13: Take urgent action to combat climate change and its impacts, with a frequency of 130 (20.70%), SDG 15: Protect, restore and encourage sustainable utilization of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss, with a frequency of 104 (16.56%), and SDG 14: Conserve and sustainable consumption of the oceans, seas and marine resources for sustainable development, with a frequency of 98 (15.61%).

These SDG may seem unimportant compared to the other SDG's frequency. However, each of the less chosen SDGs selected was by more than 15% of the respondents. It suggests that 98 and more respondents are interested in adopting these goals locally. Another possible cause is by the geographical situation where respondents were living in an area with low exposure to the effects of nature, such as near a forest or the ocean. However, these leaders are still aware of the issues and were interested in implementing those SDGs. The leaders show a high level of awareness even to the least chosen of the SDGs.

Analysis has highlighted that 11 out of the 17 goals identified as the vital few. This vital few interprets as 64.7% of all the 17 SDG were considered essential and were shown as goals with the highest interest implemented locally.

5.1.1.6 Summary on Respondents' Awareness of the SDG

From the nation's situation in both rural and urban areas, issues are in line with the grassroots communities' needs and demands. It seems implied from the findings that these Malaysian women grassroots leaders are not only in tune with their communities' needs, and the nation's development plans, but they are also very much aware of the UN SDG, and how, the goals adapt in assisting their communities' development and betterment.

This awareness implies that these leaders no longer need to be introduced to the SDG as they are already in the know and are ready to take the next steps in localizing SDG into their community. They have even identified which goals are vital to them and that is needed to prioritize. Responsibilities of SDG implementers in Malaysia is to significantly streamline the SDG with the needs of the local community and the development of the nation.

It is therefore highly recommended that elected or chosen Malaysian women grassroots leaders are the primary driver of ensuring that the SDGs are successfully localized. Their awareness of the SDGs signals a readiness to reach specific targets and to aim for certain SDGs to be adapted in their community. Women leaders from any types of the organization should try to localize SDG to lessen the effect of political interference. Examples of this include women leaders from the private sectors, NGOs, and the government sector should all be actively involved. They should be given the resources to implement activities, and with a little guidance, work towards achieving all the SDG targets and indicators.

As a comparison to existing literature, these may be significant as there was no research found on Malaysian women grassroots leaders, in particular to all of the UN SDG targets. Most research done was on specific goals such as Climate Change (Havet, 2003; Grant, 2016; Vella, 2017), health (Shannon, 2013) or the eradication of poverty (Sulaiman, 2011), this research; however, highlight the women leaders' awareness of all

of the goals. For future research, we can further the research by analysing a group of youths to see if they too have the strength to localize the SDGs successfully.

5.1.2 Commitment to the SDG

The research further investigated the activities implemented by the women leaders in their community and was analysed if it reflected the leaders' responsibility towards the SDG.

The four goals with the highest frequency of commitment selected by the respondents are "Good Health and Well-Being" (64.49%) "No Poverty" (57.64%), "Decent Work and Economic Growth" (41.72%) and "Quality Education" (41.72%). An overall view of the commitment shows that the implementation of SDG related activities is mostly dependent on several challenges; however, the women leaders were creative in their execution of the projects, as evidenced by the respondents' statements in the questionnaire, such as the collaborations with various partners, and the outsourcing of funds.

In line with Malaysia's National Blue Ocean Strategies (NBOS) of rapidly delivering high impact programs and activities to the public at low costs (Ashaari, Ku Azizan, Selvaraju, & Hasan, 2015; Office of the Prime Minister of Malaysia, 2016), the women leaders have cooperated with various agencies, Ministries, private companies and NGOs in implementing activities related to the SDGs. Co-operations between the grassroots authorities, agencies and organizations ensured that a more significant number of performed undertakings, at a fraction of a cost, with mutual benefits to all parties involved.

5.1.2.1 Commitment Towards Good Health and Well-Being

A massive percentage of 64.49%, equivalent to 405 respondents revealed that they have previously implemented various programs in their community regarding healthy living and promoting well-being for everyone in their community.

After further research via data analysis from primary and secondary data, such as interviews with three (3) participants was done, it was corroborated that activities did were of awareness campaigns of the importance of constant check-ups especially for women, prevention and treatment of substance abuse, awareness campaigns on road safety and the importance of reproductive health, family planning, and good quality healthcare. All of which are in line with the achievements of targets set by the government. This corroboration shows outstanding commitment to the nation's focus and the needs of the community.

As Malaysia geared into the South-East Asia (SEA) Games in August 2017, many activities were implemented to answer the call of the Ministry of Youth and Sports, such as the Fit Malaysia programs where small events performed nationwide, and the passion for health and sports revitalized, alongside national pride.

5.1.2.2 Commitment Towards Eradicating Poverty

As many as 362 respondents (57.64%) declared that they had implemented programs in their community, regarding eradicating poverty. This includes the implementation of awareness of women's rights, in case of a divorce or death of the primary breadwinner or husband, microfinancing activities to encourage income-generating activities, the importance of savings and extra income generation, skills training, and also exposure to new methods of entrepreneurship, such as online businesses and innovating existing products.

The women leaders have proudly worked with various agencies to curb poverty and bring in opportunities such as small loans, and capacity building to the people in their community.

They have also implemented activities that encourage the youth to apply for a career and for women to get back into the workforce. For these programs, they have worked with various Ministries, especially the MWFC and its' agencies.

5.1.2.3 Commitment Towards Decent Work and Economic Growth

The third highest frequency of SDG chosen was the Goal for Decent Work and Economic Growth which 262 respondents (41.72%) disclosed of having implemented activities relating to this SDG.

Activities implemented at the grassroots level involved various levels of economic status. There were activities done for graduates to assist them in finding a job, preparing a resume and getting ready for interviews. There was also products analysis done on existing product or service within the community to improve further the business, such as product branding or rebranding, packaging, market opportunities and creating niche markets. All this implemented cooperation was with private companies, NGOs, local authorities and government agencies such as Small Medium Enterprise Corporation (SME Corp.) and others.

Some communities even organized career carnivals where they invite companies and other organizations to give exposure to the youths within the society, on what they expect out of potential employees (such as skills, confidence, and resourcefulness).

5.1.2.4 Commitment Towards Quality Education

From the respondents themselves, the research revealed that 262 respondents (41.72%) have already previously implemented programs in relations to quality education in their community.

5.1.2.5 Other SDGs

The goals with the least number of frequencies implemented were SDG 13: Take urgent action to combat climate change and its impacts, with a frequency of 88 (14.01%), SDG 14: Conserve and sustainable utilization of the oceans, seas and marine resources for sustainable development, with a frequency of 72 (11.46%), and SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss, with a frequency of 59 (9.39%).

The lack of implementation of these goals may be due to the challenges faced, such as lack of financial assistance, which leads to the women leaders having to prioritize accordingly. Even with the challenges faced, there were still some leaders who have implemented the SDG. The actions of these leaders show commitment despite limited resources.

5.1.2.6 Summary of the Commitment to the SDG

Despite limited resources, the women leaders have managed to implement all of the SDGs nationwide. The effort by the women leaders implicated a firm commitment as the leaders are aware and are very clear of the importance of SDG to their locality.

An excellent example of the displayed commitment is via the implementation of programs and activities under the Komuniti PERWANI (PERWANI Community) groups. PERWANI stands for “*Perkumpulan Wanita*” or Group of Women, where the idea behind

this program is that women leaders are the drivers of the nations' and communities' development. From the information gathered, these Komuniti PERWANI were behind activities from multiple SDGs. For example, during a major flood in Kelantan, one of the states in rural Malaysia, a few groups of Komuniti PERWANI from a different state organized donation drives and volunteer work that was participated by other women from various states. In a beautiful show of community leadership, these women managed to gather basic needs items, distributed them to the flood victims, worked with local authorities to clean up houses and make the homes safe and habitable again. They also managed to bring other women from different states to do the same. It was indeed the perfect example of women leaders showing a high commitment to SDG related activities.

Other than the good governance that they have shown, the women leaders have also displayed creativity and ingenuity in implementing activities with limited resources and many other challenges. They have worked together with other government bodies, agencies, NGOs and private sector, with the target of achieving the same goals. An example of this is the creation of awareness of the dangers of substance abuse. The National Anti-Drug Agency or the *Agensi Anti Dadah Kebangsaan* (AADK) has identified a few villages throughout rural Malaysia, and they worked together with local authorities, the local leaders themselves, and other related NGOs to create relevant campaigns. Everything is free of charge as the local authority provided the venue, AADK provided the substance, activities and brought in the experts, and the local leaders, together with NGOs organized the food and logistics themselves. All were able to work together for the benefit of the village, to curb the epidemic of drug abuse that existed in the community.

In comparison to previous research done in this area, successful women leadership has shown in specific goals such as the environment (Backer & Jahn, 1999), health (Ali, 2011; Ergas, 2012) or education (Hill, Yean, & Zin, 2013). This research, however, differs from

other as the findings indicate that, Malaysian grassroots women leaders have already successfully implemented, not one, or two, but all of the 17 UN SDG locally, here, in Malaysia.

The previously implemented SDG related activities suggest that the Malaysian women grassroots leaders are more than capable of implementing the SDG locally. What is still lacking are resources and further guidance from the government on the way forward of the SDGs.

5.1.3 Challenges Faced in Implementing the Goals

This research went into the relationship of Leadership Traits and Interest in implementing the SDG to see if there exists a correlation between the two variables, and if so, is Leadership Trait a challenge in the localization of the SDG. The research then continues to statistically analyse if there were other prominent factors based on variables in the questionnaire. An analysis of the questions in the survey soon followed to see the respondents' perception of what are the challenges that they faced. The targets and Indicators of Malaysia's SDG implementation exploration were to see a bigger picture, of the overall challenges.

5.1.3.1 Exploration of Leadership Traits as a Challenge

The results of the analysis suggest that there may be a correlation between the variables Leadership Traits and Interest in SDG, despite the ANOVA results. Thus, further tests need exploration.

However, after further deliberation, the respondent's background showed the reliability of holding the elected post. Therefore, it may be assumed that they have previously demonstrated excellent leadership skills, gained the trust of the community and are with years of experience.

The high level of Leadership Traits is also indicative of good leadership qualities, and since they were elected, or chosen for the position, we can naturally assume that they are good leaders, from the start. Therefore, Leadership Traits may not be a challenge to this particular group of respondents to localize the SDG.

5.1.3.2 Prominent Factors

The most significant predictor identified was the SDG related programs implemented leadership traits and gender awareness. Further research is suggested to reveal a workable universal model with the relevant variables to ensure the successful localization of SDG in Malaysia's locality. However, the weakness of this research may be in the assessment of Leadership Traits done. The research further suggests that, to make a better universal model to evaluate individuals if suitable for the localization of SDG and to use a more comprehensive leadership evaluation.

Another significant predictor is the SDG activities already implemented by the respondents. This finding is in line with the first two research questions, where, not only are the respondents aware of the UN SDG, but they have implied strong commitment in the SDG as they have already implemented all of the 17 SDG nationwide. The findings also signify those Malaysian women grassroots leaders are the suitable people for ensuring that the SDGs are successfully localized here in Malaysia.

Gender awareness was identified as also one of the prominent predictors. This finding is significant, where it could be the key to successful SDG implementation, anywhere in the world. There are many articles and books on the importance of gender leadership, and how the changing of leadership styles, mainly based on gender will one day determine the new norm (Weir, 2014). There is also research done on the importance of gender awareness to the successful implementation of one SDG goal, such as in health, water management (Grant, 2016) or in the agricultural sector (Okaka & Nagasha, n.d.).

However, the findings in this research imply that gender awareness is a prominent predictor of the successful implementation of the UN SDG at a local level. This implication may be an eye-opening result of the finding, especially to all the government bodies in Malaysia. The implied notion also indicates that the government needs to stand up, acknowledge the importance of gender awareness, and take the necessary steps to ensure the increased level of gender awareness in the whole process of the localization of SDG.

This finding is also a contributing proof of the importance of prioritizing Gender equality. How would the government or other organizations move forward with this particular result in the findings? An example is the utilization of UNESCO Priority Gender Equality Action Plan – 2014–2021. Governments and organizations can learn how to prioritize gender equality through capacity development and to set focus areas for coordination (UNESCO, 2014).

5.1.3.3 Perception of Challenges Faced

As highlighted in the findings of the research, the “vital few” goals that show the biggest challenge to localizing the SDG are lack of funds, lack of workforce, lack of motivation, lack of information, lack of planning and lack of cooperation from agencies.

These challenges in the implementation of SDG activities are crucial and need to be looked into urgently at each level of an operating body or organization. This is because, even when our people, the leaders on the ground are ready to do the work, they have the passion, they have the knowledge, shown their commitment, and they have proven their passion, but these implementation challenges will hinder all the success that is already within our grasp as a country.

From a general review done based on the questionnaire, of the impact and outcome of government projects that were implemented by the women leaders, lack of funding was

the primary cause of the inability to prove the Return on Investment (R.o.I). Local universities, however, are working hand-in-hand with government agencies to come up with this type of R.o.I. With the existence of such an indicator, it will make defending for a budget easier and hopefully more fruitful. Once organizations can uphold the returns that they are getting from SDG related activities, it will surely be an easier task to ask for more financial assistance.

Lack of workforce is also one of the significant challenges faced by the local women leaders in implementing SDG related activities. The lack of workforce is possibly caused by the lack of interest and also relating to another challenge, lack of motivation from another member of the community. A solution to this may be to get the buy-in and interest of the targeted members of the society. To get the interest of youths in a village, for example, activities implemented need to be relevant to them and interesting enough that they will join the whole duration of the event. Activities need to be more interactive, hands-on and up-to-date. An excellent example of SDG related activities done is online commerce training where villagers can learn to set up an account at any e-commerce platform, learn how to sell any product, and keep safe at the same time, away from internet scams and frauds. Another good example is a Zumba party for whole families to join, or a health carnival for the entire communities. Local leaders can invite experts to talk on health, give free health screenings and even teach self-defence like events done by the DWD, Malaysia, with the collaboration of many parties such as the police, NGOs and private sectors.

To solve the challenge of Lack of information, local leaders need to be up-to-date with the latest news disseminating social media. However, everyone needs to be careful to get the correct source of information, and not just any random individuals or organizations, whose credibility cannot be proven. Local leaders can also keep in touch with all the relevant agencies and NGOs on the ground with their high level of possession and usage

of ICT infrastructure (Hassan, 2011). They usually, not only have information on the relevant issues about SDG related matters, but they also may have information on additional sources of financial assistance that local leaders can look into. Some NGOs, for example, have access to international funding, specifically to implement SDG related activities in local communities. However, these types of financing are usually for specific SDG, such as quality education, or eradicating poverty. It is an excellent place to start, especially when local leaders are short of financial capacity. Agencies also can provide relevant information on any specific topic. An example in building resilient communities are local authorities that have information on what to do in case of a natural disaster, what to do, whom to contact, and what kind of preparations should villagers do beforehand. Information such as these, not only assists the local leaders to implement SDG related activities, but it can also save lives.

For the challenge, lack of planning, local leaders, whom may not know where to start, and what to do, have the opportunities to engage with various organizations, depending on the subject matter. Examples are the organizations that exist at the grassroots level in Malaysia. Farmers' Organization Authority or *Lembaga Pertubuhan Peladang* (LPP) has offices nationwide, and they offer a wide range of assistance to everyone. From information sharing on the latest agricultural trend, eco-tourism, Innovative agricultural methods, and advice in the whole cycle of production. Moreover, they can even be invited to give talks to the community. Agencies like these are aplenty, here in Malaysia, and they are entirely reachable. Local leaders need to know which agency that they need assistance with, and only contact them and initiate a working relationship at the grassroots level.

Once a working relationship has been established with various agencies locally, the challenge of lack of cooperation from agencies will hopefully diminish. Malaysia is a beautiful country where we are all moving together towards a Progressive Nation in 2050.

We are all aiming for the same things, for the good of our people, for the benefit of our future generations. There really should not be an issue of lack of cooperation or mutual support of each other.

5.1.3.4 Achieving the Targets by Completing the Indicators

An overarching challenge for the nation is the achievements of the targets and indicators set for each of the SDGs. The targets and indicators established by the Malaysian government are as presented in Appendix C.

Malaysia's National Blue Ocean Strategy can play an active role in ensuring the active cooperation between all the organizations involved. The challenge to achieve these targets and indicators falls to all of us. Everyone has a role to play, but Malaysian women grassroots leaders, in particular, are in a strategic position to ensure the success of this.

5.1.3.5 Summary of Challenges in the Implementation of SDG

There are indeed so many challenges and hindrances in localizing the SDGs, but they all have their solutions. We can learn, not only from each other but also from other countries, on how they managed to localize the SDG in their own countries. Learning from others, forging good working relationships, and increase gender awareness are the main essential methods to be successful at this. Adapting possible solutions to our own local's situation is on its own a challenge, but it is also one of the answers to the problems.

5.1.4 Summary of Discussion

Malaysian women grassroots leaders have shown a readiness to localize the SDG as they confirmed their awareness and their commitment to the goals of the survey. The women leaders' readiness suggests a significant tactical factor where these women leaders are of strategic value for the successful implementation of the SDG locally.

By identifying challenges and issues faced, the leaders may be able to strengthen their forte, reduce any weaknesses, forge new alliances with local counterparts, and in doing so, ensures the successful localization of the SDG.

Further research needs exploration on how gender awareness may affect the successful localization of the SDG. It is quite clear that with gender awareness, old paradigms are challenged and brought way to a new norm in leadership. Advantages of a diverse group of people working together are undeniable as each, and every one of the players may bring something different to the table. Various perspectives will give different points of view on any particular issue, and that is always a beneficial way to solve a problem or a challenge.

The importance of gender awareness to be assimilated in the community will bring about social change at all levels of the society. However, the good news is that Malaysia has already started the social change, with the ever-increasing number of women in Board of Directors, and in leadership positions nationwide. Social change has been happening in the country, but the maintenance of the momentum is necessary, especially now that we know of the women leaders' awareness and commitment to the SDG locally and that they are the key to this successful implementation of the goals.

In assessing previous research done, it is quite clear that Malaysia is more than ready to take up the challenges to successfully implement the SDG locally, with all the set targets and indicators, provided everyone plays his or her roles in ensuring its success. However, there has been no indication from the government or other organizations in Malaysia that Women Leaders will take the lead in the localization of the SDG. The findings of this research entirely indicate that who takes the lead to localize the SDG needs some serious consideration.

As is indicated in this research, Malaysian women leaders have a high level of awareness of the UN SDG and have demonstrated their commitment with activities

related to SDG already implemented at the local level, in line with the communities' needs. Other than these two factors, their forte now include the challenges that may seem to hinder the progress of localization of the SDG, but instead, showed that the women leaders have the strength of the nation's readiness, already have the high levels of leadership traits needed, and also a high level of gender awareness. These factors reinforce their forte in successfully implementing the SDG.

5.2 Managerial and Policy Implication of Findings

While the responsibility of ensuring that the successful localization of the SDG lies with everyone, Malaysian women local leaders are indicated to be the most strategic leaders to play the role. Their forte includes their already existing awareness of the UN SDG, their continued demonstration of commitment towards the SDG, and their passion and drive that has been apparent during the implementation of this research.

The Malaysian government may well better consider these findings and invest in these women leaders. Their capabilities realized, they need empowerment, and others need awareness of the women leaders' strength and potential as influential local leaders with the ability to get things done.

The existing critical factors such as their high level of leadership traits, awareness, and commitment to the SDG and their level of gender awareness are all significant factors in creating a lasting and impactful difference in their community, via the localization of the SDG.

Further exploration into the research of the importance of gender awareness is vital to creating an understanding of other challenges, to handle and solve the issues if the localization of the SDG were to be successful.

The researcher highly recommends, based on the results of research done, that the findings of this research be as a proof of the importance of gender leadership, and those

women leaders, in particular, are crucial investments. The MWFC, for example, can use this finding to justify further funding application to create gender awareness in the Malaysian community. The findings can assist in achieving the targets and indicators set for Malaysia's SDG achievements. Another example is in the review of the National Policy on Science, Technology, and Innovation (NPSTI) that is currently being undertaken by MESTECC. This is an excellent opportunity to include women leaders as the driving force of the nation's Science, Technology, and Innovation (STI) development.

Other countries also need to pay attention to the result of the findings in this research and start looking into the potential roles of their local women leaders, to be able to make a change locally and nationally.

The dissemination of the results of this finding to government agencies, the private sector, and NGOs, can assist in their evaluation their own women leaders, and realize that these women can make a huge difference if they have the awareness and commitment to the SDGs, just as the respondents of this research has.

5.3 Further Research and Conclusion

Exploration and further examination of topics such as STI are essential as Malaysia has an existing pool of women scientist, entrepreneurs and researchers. By applying the findings of this research, evaluating the women, and initiating the necessary next steps, Malaysian women scientists, researchers, and entrepreneurs can be the future leaders to implement SDG in their organization. There is a considerable possibility that the women involved in STI or even in the field of Science, Technology, Engineering and Maths (STEM), can be the leading movers and shakers of localizing the SDG agenda in Malaysia.

Policymakers of the country may well take these findings to improve existing policies further, or in creating new ones. The nation's policy may be improved significantly, in

the opinion of this researcher, if taking into account the findings of this research. Other countries may even emulate the policy-making methods and apply them to their own country, taking into account the importance of the women leaders' forte.

SDG implementers worldwide may also use these critical findings as a basis in answering the individual responsibilities and linkages between the goals that were highlighted by researchers (Bexell & Jönsson, 2017) and in SDG reports (International Council for Science, 2015).

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