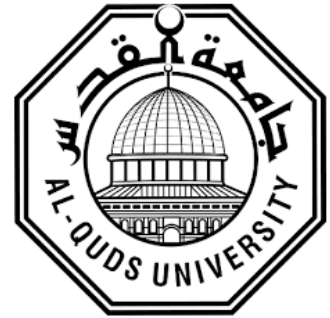


Deanship of Postgraduate Studies

Al Quds-Abu Dis University



**The Role of the Ministry of Education in Enhancing
Environmental Conservation in Southern Palestinian
Governorates**

Noha Ahmed Al Yaqubi

M.Sc.Thesis

Gaza- Palestine

1443-2022

*The Role of the Ministry of Education in Enhancing
Environmental Conservation in Southern Palestinian
Governorates*

By

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**A Thesis Submitted in Partial Fulfillment of the
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in Southern Palestinian Governorates**


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1444/2022

Dedication

To my parents,

The reason of what I become today, thanks to your continuous support and care. This thesis would not have been possible without the support of my great parents, my father Ahmad Al Yaqubi and my mother Nada Sabri, those who left indelible stamp at my heart, who pay full support during this arduous journey of studying and searching.

To my husband and children,

I am grateful to all of you, you are my inspiration, you are the reason for encouraging me to turn possibilities into realities.

To the teaching staff of Al Quds Abu Dis University

I appreciate your guidance, support, and trust.

To all people who wish me luck and show support, trust and respect

Many thanks to my friends, work colleagues, and university's colleagues.

The researcher

Noha Ahmad Al Yaqubi

Declaration

I certify that, except where otherwise noted, this thesis, which I submitted for a Master's degree and which is titled "The role of Ministry of Education's Programs in enhancing the environmental awareness," is the result of my own work and that neither the entire thesis nor any portion of it was submitted to another educational or research institution to be awarded a degree or a scientific title.

Name: Noha Ahmed Yaqubi

Date: 14.01.2023

Acknowledgment

All thanks to ALLAH for all the countless blessings things given to me in every step of my life. Thanks, ALLAH, for giving me patience, wisdom, and perseverance to overcome all the obstacles and difficulties. Thanks, ALLAH, for making me capable to accomplish this thesis at the possible proper way.

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- I appreciated all my friends and work colleagues for their emotional support.

The researcher

Noha Ahmad Al Yaqubi

Glossary

Ministry of Education:

A governmental entity that strives to provide high-quality education through continuously building and modifying the educational system to be compatible with rapid world changes in order to build and enhance educators' knowledge and make them fully aware of their rights and duties.

Ministry of Education's Programs

Organized activities set by MoE or other governmental institutions to enhance students' knowledge, attitude, and skills toward pre-designed learning objectives.

Environmental Awareness:

Human knowledge, attitudes, and practices toward the surrounding environment, environmental problems, and ecosystem; and display of positive behavior toward the environment and keeping it clean and free of waste and pollutants.

Environmental Conservation:

Actions taken by governments, institutions, and individuals to protect the environment through the efficient use of resources, and preservation of the ecosystem and species diversity.

Environment

A Place surrounding living things (humans, animals, and plants) including the natural, social, cultural, and human factors that affect individuals and living organisms, and form relationships between them.

Abbreviations:

MoE	Ministry of Education
JICA	Japan International Cooperation Agency
WEQA	Water & Environmental Quality Authority
SDGs	Sustainable Development Goals
MoH	Ministry of Health
INGOs	International Non-Governmental Organizations
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Co-operation and Development
PCBS	Palestinian Central Bureau of Statistics
UNDP	United Nations Development Program
MoLG	Ministry of Local Government
UNFPA	United Nations Populations Fund

Abstract

This study aimed to clarify the role of the MOE's programs in promoting environmental conservation by analyzing the educational and awareness programs implemented in the public schools in the governorates of Southern Palestine.

The study followed the descriptive analytical approach using three study tools for data collection; a questionnaire, interviews, and focus groups. The study population was targeted based on Census Method using a questionnaire distributed to 123 employees; including school headmasters, health school coordinators, and environmental clubs' teachers; working at 50 public schools distributed across the seven educational directorates in the southern Palestinian governorates. Only 105 questionnaires were recovered. The response rate of the study was (85.37%). Also, interviews were held with middle and senior management employees working at the MoE and WEQA. Two focus groups of male and female students from grades 7-11 at two different educational directorates were met with.

The study showed the importance of education in improving environmental awareness and conserving the environment through educational and awareness programs. The study's foremost important results are that the three educational programs (Environmentally Sustainable Schools, Environmental Occasions' revival, and Green Spaces), held at fifty schools in the seven educational directorates, contribute to enhancing environmental conservation in the southern Palestinian governorates but not to the required extent. The study highlighted a number of challenges facing the implementation of educational programs, such as the lack of financial resources, negligence of the implementation of environmental laws, lack of community environmental awareness and engagement, and the lack of effective partnerships. Additionally, there are no differences in the respondents' responses about the role of the Ministry of Education's programs in enhancing environmental conservation due to demographic variables.

Eventually, the study recommends the incorporation of environmental education into the Palestinian curriculum of at every grade level, developing the implementation of extracurricular environmental conservation activities, conducting environmental awareness sessions for the local community and parents, allocating a specific budget for education/environmental

programs, activate the environmental media, developing a unified system for monitoring and evaluating the schools' educational and awareness programs, and taking into account hiring a full-time environmental educator and more staff for the School Health departments in the seven educational directorates, maintaining the role of private sector partnerships and civil society institutions.

دور وزارة التربية والتعليم في الحفاظ على البيئة في المحافظات الجنوبية الفلسطينية

الباحثة : نهى يعقوبي

المشرف : د. نبيل أبو شمالة

الملخص

هدفت الدراسة إلى توضيح دور برامج وزارة التربية والتعليم في تعزيز الحفاظ على البيئة من خلال تحليل البرامج التعليمية والتوعوية التي يتم تنفيذها في المدارس الحكومية في المحافظات الجنوبية الفلسطينية.

اتبعت الدراسة المنهج الوصفي التحليلي باستخدام ثلاث أدوات لجمع البيانات: استبانة ومقابلات ومجموعات بؤرية. وتم استهداف مجتمع الدراسة باستخدام طريقة الحصر الشامل بالاعتماد على أداة الاستبانة والتي تم توزيعها على 123 موظفاً بما في ذلك مديري المدارس ومنسقي المدارس الصحية ومعلمي الأندية البيئية والذين يعملون في 50 مدرسة حكومية موزعة على مديريات التربية والتعليم السبعة في محافظات جنوب فلسطين. تم استرداد 105 استبانة بنسبة استجابة بلغت (85.37%). كما تم إجراء مقابلات مع موظفي الإدارة الوسطى والعليا العاملين في وزارة التربية والتعليم وسلطة المياه وجودة البيئة. وتم أيضاً تنفيذ (2) مجموعة بؤرية من الطلاب والطالبات من الصفوف 7-11 في مديريتين تعليميتين مختلفتين.

وأوضحت الدراسة أهمية التعليم في تحسين الوعي البيئي والحفاظ على البيئة من خلال البرامج التثقيفية والتوعوية. وتتمثل أهم نتائج الدراسة في أن البرامج التعليمية الثلاثة (المدارس المستدامة بيئياً، وإحياء المناسبات البيئية، والمساحات الخضراء)، التي أقيمت في خمسين مدرسة في المديريات التعليمية السبعة، تساهم في تعزيز الحفاظ على البيئة في المحافظات الجنوبية الفلسطينية ولكن ليس بالقدر المطلوب. وسلطت الدراسة أيضاً الضوء على عدد من التحديات التي تواجه تنفيذ البرامج التعليمية، وأهمها نقص الموارد المالية، والإهمال في تنفيذ القوانين البيئية، وقلة الوعي البيئي والمشاركة البيئية المجتمعية، ونقص الشراكات الفاعلة. كما أظهرت النتائج عدم وجود فروق في ردود المبحوثين حول دور برامج وزارة التربية والتعليم في تعزيز المحافظة على البيئة نتيجة المتغيرات الديموغرافية.

وأخيراً، توصي الدراسة بضرورة دمج التعليم البيئي في المناهج الدراسية الفلسطينية في كل مرحلة دراسية، وتطوير تنفيذ الأنشطة اللامنهجية التي تتعلق بالحفاظ على البيئة، عقد دورات توعية بيئية للمجتمع المحلي وأولياء الأمور، وتخصيص ميزانية محددة لبرامج التعليم / البيئة، وتفعيل دور الإعلام البيئي، وتطوير نظام موحد للرقابة والتقييم للبرامج التعليمية والتوعوية في المدارس، ومراعاة تعيين مثقف بيئي بدوام كامل والمزيد من العاملين في أقسام الصحة المدرسية في المديريات التعليمية السبعة، وتعزيز دور شراكات القطاع الخاص ومؤسسات المجتمع المدني.

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Chapter 1

Study Background

1.1 Introduction:

Education is a roadmap for the development of countries as it plays an essential role in strengthening morality and improving literacy rates through graduating well-educated and civilized individuals who are aware of their rights and responsibilities so that they would enjoy good quality of life. The enforcement of educational policies and programs is usually done in conjunction with worldwide rapid changes including, but not limited to, technological advancements, political stability, environmental deterioration, and demographic challenges.

Education is one main pillar of achieving the Sustainable Development Goals (SDGs), which cannot be separated from the environmental dimension, where environmental conservation is closely linked to people's educational level, welfare, and health. Recent studies such as (Mwembezi, 2014), (Aldosari, 2016), (Stofejova, 2020), showed that the lack of environmental awareness is the main catalyst for threatening environmental sustainability due to irrational consumption and wide industrial production processes. Therefore, the current global educational attention is primarily directed toward raising people's environmental awareness to prepare for their involvement in the transformation process toward the 2030 SDGs plan.

The Southern Palestinian governorates, too crowded in comparison to their area (5,612 p/ km²), are among the areas suffering from a noticeable stressful environmental situation (Palestinian Central Bureau of Statistics, 2022). The population in Gaza Governorates are expected to double in the coming years to reach population density, causing the increase in consumption of resources and generation of waste as well (Prime Minister Office, UNFPA, 2016).

As maintaining environmental sustainability and behaving wisely toward the environment and its resources is everyone's responsibility, the Ministry of Education in Palestine works concurrently with other concerned actors to enforce the environmental-educational policies and strategies related to environmental conservation. Based on that, this study concentrated on

various educational interventions implemented to enhance environmental conservation in the most cost-effective way through raising the awareness of teachers, students, and the community.

1.2 Research Problem:

Recent studies showed a dramatic deterioration in the environmental situation in Southern Palestinian governorates where the main threats to the environmental situation in Gaza Governorates are the irrational exploitation of resources and pollution result from wastewater and solid waste (WEQA, 2021-2023). Also, Gaza Governorates are suffering from an exacerbating problem in managing waste, where the generated waste in Gaza Governorates reaches 1950 tons per day with a .9 KG/capita/day. (Thoni and Matar, 2019)

Relevant to this context, Thöni and Matar (2019) and Water and Environmental Quality Authority (2014) asserted that the lack of public awareness and irrational utilization of resources are of the main catalysts behind the environmental degradation in Gaza Governorates. This was also confirmed by Hanisch et al. (2014) who explained that environmental protection could not be maintained without raising environmental awareness.

Therefore, it is imperative to understand the role of the Ministry of Education's programs in promoting tolerance environmental-related practices in the Southern Palestinian governorates. This is the most cost-effective way as MoE's programs target the most active actors in society reach to approximately 302,531 people which constitutes around 14% (students and teachers) of the population in the five Gaza governorates (General Education Statistics Division, 2022).

Based on the above-mentioned points, **the main research question is articulated as follows:**

"What is the role of the Ministry of Education in conserving the environment in the Southern Palestinian governorates?"

From the main question, the following sub-questions are derived:

1. To what extent the educational programs contribute to enhancing environmental conservation in the public schools in the Southern Palestinian governorates?
 - To what extent the Environmentally Sustainable Schools Program contributes to enhancing environmental conservation in the public schools in the Southern Palestinian governorates?
 - To what extent the Environmental Occasions' Revival Program contributes to enhancing environmental conservation in the public schools in the Southern Palestinian governorates?
 - To what extent the green spaces Program contributes to enhancing environmental conservation in the public schools in the Southern Palestinian governorates?
2. Are there any statistically significant differences in the respondents' opinions regarding the role of the Ministry of Education's programs in enhancing environmental conservation due to the demographic variable?
3. What are the obstacles that affect the implementation of educational/environmental programs in the public schools in the Southern Palestinian governorates?

1.3 Research Justifications:

1. The target group of teachers and students is the most powerful actors and the most important components influencing the Palestinian society.
2. The critical environmental situation in the highly populated Gaza Governorates and severe deterioration of environmental resources.
3. The importance of enhancing environmental conservation in a context of limited resources and lack of finance.
4. The crucial role of the Ministry of Education as a policymaker and its influence on the Palestinian society.
5. The absence of environmental policies' evaluation and implementation despite their importance.
6. The increasing world interest in environmental conservation issues.

1.4 Study Significance:

1.4.1 Scientific/Theoretical Importance

The current study derives its importance from two investigated variables: the Ministry of Education's programs and Environmental Conservation.

1. This research clarifies the role of the Ministry of Education's programs in enhancing environmental conservation at the public schools in the Southern Palestinian Directorates, where they are no previous studies, to the best of researcher's knowledge, have discussed this topic or drawn a detailed picture of educational interventions related to environmental conservation.
2. This study provides information about educational interventions related to environmental conservation applied at the public schools in the Southern Palestinian governorates.
3. This study assesses the educational programs implemented in public schools; describes the related current and potential strengths, weaknesses, which may contribute to or impede environmental conservation.
4. The present study has generated information that can be used as baseline data by later studies.
5. This research reveals the important role of current and future generations in environmental conservation.
6. This study sheds light on current partnerships between the Ministry of Education and Water and Environmental Quality Authority, and other partnerships regarding the implementation of educational/environmental strategies in public schools.
7. This study provides information about the environmental situation in Gaza Governorates regarding handling waste, consumption of resources, and protection of landscapes.
8. This study provides information about teachers' and students' awareness of the environment and their contribution to implementing educational programs.
9. This study is a benchmark for taking serious actions by the Ministry of Education regarding the implementation of educational policies and programs related to the environment.

1.4.2 Practical Importance

1. This study is useful for decision-makers in the Ministry of Education to better develop the educational programs so to be compatible with environmental dimensions.
2. The results of this study can be taken into consideration by the MoE when preparing its strategic and operational plan.
3. The MoE may take initiatives for activating partnerships in such programs.
4. This study may inspire decision-makers to take serious steps to activate the implementation of applicable rules and policies so more attention would be paid to developing and improving environmental- awareness programs inside schools.
5. This study highlights the obstacles facing the implementation of educational programs, for which the MoE can find appropriate solutions.
6. The MoE may take into consideration the current study's results which are relevant to the responses of the research sample to participating in environmental conservation's programs when preparing new similar programs.
7. The study can be considered by those in charge of preparing and developing school curricula.
8. The researcher sheds light on success factors and difficulties that may enhance or curb the implementation of environmental programs in schools.

1.5 Study Objectives:

The Main objective:

Understanding the role of the MoE in enhancing environmental conservation at public schools.

Sub-objectives are as follows:

1. Understanding the contribution of educational programs to enhancing environmental conservation in the public schools in the Southern Palestinian governorates.

- Understanding the contribution of environmentally Sustainable Schools Program to enhancing environmental conservation in the public schools in the Southern Palestinian governorates.
 - Understanding the contribution of the Environmental Occasions' Revival Program to enhancing environmental conservation in the public schools in the Southern Palestinian governorates.
 - Understanding the contribution of the Green Spaces Program to enhancing environmental conservation in the public schools in the Southern Palestinian governorates.
2. Identifying statistically significant differences in the respondents' opinions regarding the role of the MoE's programs in enhancing environmental conservation due to demographic variables.
 3. Identifying the obstacles facing the implementation of educational/environmental programs in public schools in the Southern Palestinian governorates.

1.6 Study limitations:

1. Objective limit: the researcher explained the role of the MoE's programs in enhancing environmental conservation.
2. Population limitation: the middle and senior working staff in the Water and Environmental Quality Authority and Ministry of Education; and a sample of teaching staff, school headmasters, and students at the public schools.
3. Temporal limit: the researcher applied the study tools in (2021-2022).
4. Geographical limit: the study is applied in five southern Palestinian governorates; North Gaza North, Middle, Khan Younis, and Rafah.

1.7 Research Variables

1.7.1 Designing the study model for research variables:

There are three main variables; the independent variable (the Ministry of Education's programs) and the dependent variable (environmental conservation) and demographic variables; all are defined as follows:

Independent Variable (the MoE's programs): Organized activities set by MoE or other governmental institutions to enhance students' knowledge, attitude, and skills toward pre-designed learning objectives. The dimensions of the independent variables are 3 programs: - Environmentally Sustainable Schools Program, Green Spaces Program, and Environmental Occasions Revival Program.

Dependent Variable (environmental conservation): Keeping the balance of the ecosystem through the rational utilization of environmental resources at a rate that makes it sustainable for other generations. The dimensions of the dependent variables are rational utilization of resources, waste circulation and landscapes.

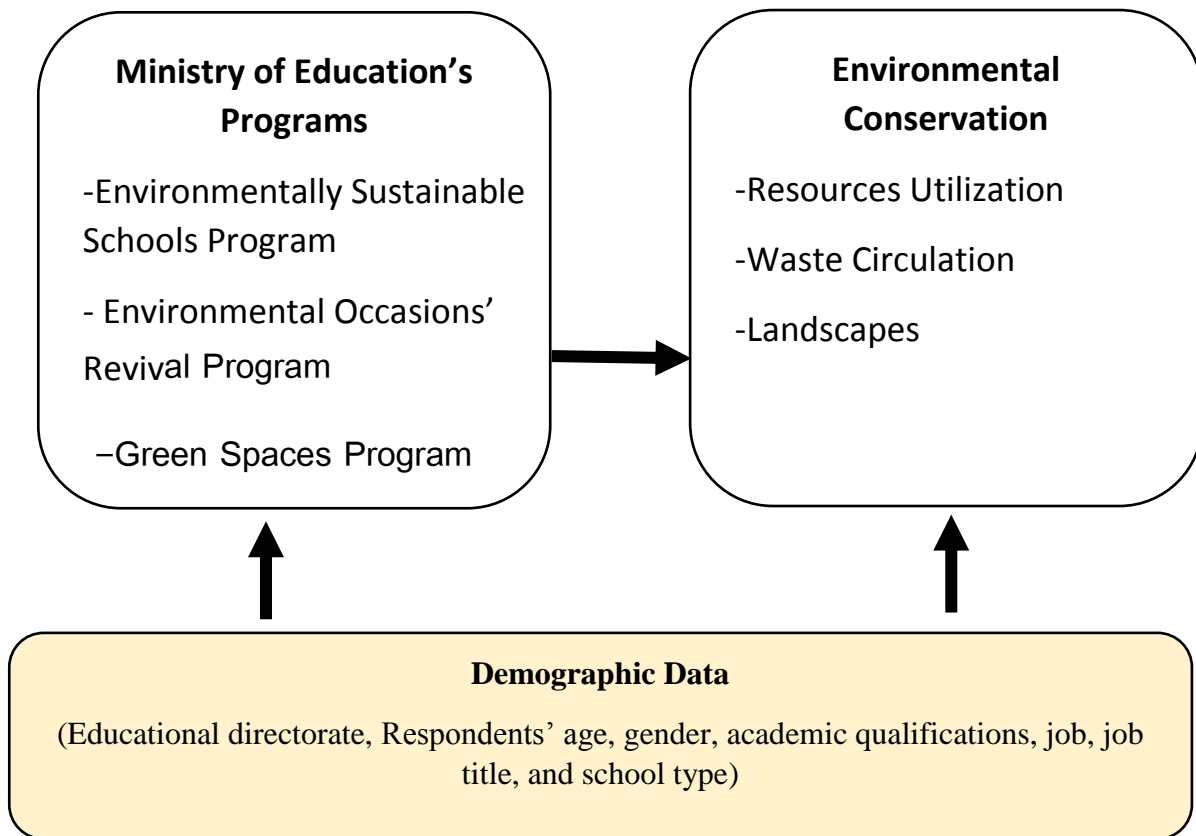
Demographic variables: educational directorate, Age, Sex, Academic Qualifications, Job, Job Title, and School Type.

1.7.2 The scientific rooting of the research variables

Variable	Previous Studies/Reports/ Official Documents	Variable Dimensions
Educational Program	(Sheta et al., 2019)	Various Educational Programs
	Sectoral strategy for education ,2021-2023-Ministry of Education	Programs, Partnerships, Strategies, Policies
	(Fatouh, 2018)	Activites/Program
	(Al Fowaihi, 2016)	Activites/Program
Environmental Conservation	(Omran, 2018)	Utilization of Resources
	(Khalifa and Nouredine, 2018)	Utilization of Resources
		waste circulation
		Landscapes
	(Stofejova,2020)	Utilization of Resources
	Cross-Sectoral Strategy, 2020-2023 at Water and Environmental Quality Authority.	Utilization of Resources
		waste circulation
Landscapes		

(Prepared by Researcher based on previous studies)

1.7.3 Research Model



(Prepared by researcher based on previous studies)

Figure 1.1 Research model

1.7.4 Research Structure:

Chapter 1: Research Background

Present research problem, questions, objectives, research justifications, significance, limitations, variables, research model and research structure.

Chapter 2: Literature Review and Previous Studies

Research definitions and the most relevant previous local, Arab, and foreign studies that dealt with educational-environmental Programs applied in Schools for enhancing environmental Conservation

Chapter 3: Environmental Status, Environmental Reality, Ministry of Education, and relevant Educational Programs at the MOE:

Presents the Palestinian environmental reality and citizens' environmental awareness, and a case study of the MoE and its relevant environmental programs implemented in schools in coordination with the Water and Environmental Quality Authority.

Chapter 4: Research Methodology:

Includes defining the research methodology, population, questionnaire design and data collection methods.

Chapter 5: Results, Data Analysis, research Questions Testing and Discussion:

SPSS is used for analyzing the data; interpreting analysis results and linking them to previous studies.

Chapter 6: Conclusion and Recommendations:

Chapter 2

Literature Review and previous Studies

- First Section: Independent Variable: Ministry of Education's Programs.
- Second Section: Dependent Variable: Environmental Conservation.
- Third Section: Previous Studies.

2.1 The independent Variable: Ministry of Education's Programs

2.1.1 Introduction

Right to education is one of the most important human rights to which all people should have access as it plays a vital role in enhancing people's knowledge and raising their awareness through delivering proper education that makes them act positively toward their community and environment. In addition, education contributes to reducing poverty and unemployment rates, and providing high quality of life. Education as a life necessity required overcoming challenges through enhancing the principles of respect and dignity among people to sustain the dimensions of sustainable development (World Education Forum, 2015). This clearly explains the integral role played by the Ministry of Education, which usually leads the development and prosperity of communities, in the implementation of educational programs oriented to meet development issues and fulfill community requirements. Therefore, all educational curricula and teaching programs in any country should be tightly governed by clear educational policies and strategies to make sure that educational programs are acceptable, accessible, and adaptable. In this section, an overview of the Ministry of Education's role will be presented including policies, programs, and partnerships.

2.1.2 Public policies:

A policy is a course of action adopted by governmental bodies to induce certain changes in the decisions and behavior of actors in that society for the achievement of certain goals. Policies are supportive tools that illustrate priorities for key national concerned parties; which should be planned, updated, and coordinated among various administrative levels, scholars, and concerned professionals to avoid the implementation of contradictory policies (Urbanič et al., 2022). Therefore, the lack of coordination will obstruct the process of managing the natural resources (Cortina-Segarra et al., 2021). Public policy is a complex process that includes a series of actions and interactions of various groups forming a combination of basic decisions and commitments (Yalmanov, 2020).

2.1.2.1 Policymaking

Policymaking is one key component in public policy where enacting policies includes three types of policy tools which are information, economic concerns, and regulations through a cyclic endless process that goes through specific steps within a policy cycle.

- First, a problem in a society should be determined, identified, and written down in the agenda.
- Second, the proposals of policies should be formulated and submitted.
- Third, the policy approved should be transferred into the appropriate procedure.
- Finally, the impacts of the adopted policies should be evaluated (Yalmanov, 2020).

2.1.2.3 Policy Legitimacy

The legitimacy of policies constitutes maintaining coordination across all country's levels and parties to overcome all development challenges. Applying governance tools is also critical in designing and implementing policies (OECD, 2021). **Bases of Policy legitimacies:**

- Initial Approval: encompasses permissive acceptance from expert and technical authority, and policy effectiveness.
- Appropriateness: consensus and legalization are required.
- Democratic processes and active commitment.
- Identity: a member in a global leadership. (Brown, 2016)

2.1.2.4 Policy Measures and Instruments

Indicate various instruments (educational and legal measures, incentives... etc.), the scientific basis the policies are built on, the capabilities to achieve the objectives derived from the policies, the availability of alternative policies, and considerations to gender sensitivity and vulnerable groups (Miller, 2018). Main types of policy measures/instruments.

1. **Legal instruments:** presented in laws, ordinances, regulations, control and sanctions for noncompliance.
2. **Economic/instruments incentives:** achieved by subsidies, grants, economic sanctions, and specific tax reductions/increases that encourage certain behavior and practices.
3. **Communicative/educative instruments** focus on disseminating information to inform people of the desired behaviors; including visits, training courses, leaflets, websites, radio and TV programs, and school curricula (Institute for Global Environmental Strategies, 2022).

This research defines ‘public polices’ as the articulated laws enacted by governmental bodies in coordination with various actors in the community focusing on specific priorities required to meet community needs and concerns. Enacted policies must be considered for their coherence, legitimacy, and compatibility with community requirements to ensure powerful and effective policies.

2.1.3 Schools’ Educational Programs:

2.1.3.1 Introduction:

There is global and national tendency toward enhancing environmental education to make it a comprehensive process in which students become vital players. Students would participate in maintaining sustainability through schools’ improvement of their environmental awareness and understanding of environmental challenges and their enablement to make rational environmental decisions. Therefore, the integration of environmental sustainability into educational programs is currently executed through merging the educational environment in educational policies, curriculum, and school environmental programs. It has become imperative to initiate such awareness development from a young age so that students can effectively adopt friendly environmental behavior across time.

2.1.3.2 Overview and definitions:

There is a strong interconnectedness between education and environmental challenges, as education triggers and forms the level of environmental knowledge and participation.

Even though there are steps for inclusion of environmental concerns in schools' programs, progress is still unclear in Arab countries as the environment is not considered as a high priority, and schools lack funds (Saab et al., 2019). The main purpose of applying environmental programs at schools is to enhance the culture of sustainable development.

2.1.3.3 Environmental training program

Al Fowaihi (2016) defines it as a group of activities that aim at raising students' environmental awareness through training activities conducted for students through specific sessions. The Environmental School Program is an educational program that aims to involve students in managing their schools, houses, and environment (Kulnieks et al., 2013).

2.1.3.3.1 Importance of Environmental Training Program in schools:

- Raising students' awareness of economic, technological, and political factors related to environmental challenges.
- Practicing environmental citizenships in schools.
- Developing students' ethical values.
- Enhancing the school's environment through voluntary work and cooperation (Al Qarwani, 2012).
- Enhancing community engagement and institutional partnerships in the field of environmental management (Debbie, 2013).

2.1.3.3.2 Objectives of Environmental School Programs: (European Union, 2018)

- Promoting sustainable development requirements in various field.
- Protecting resources for current and future generations.
- Making students understand the ecosystem.
- Making the community aware of the required changes for improving the environmental sustainability.
- Providing knowledge, skills, and attitudes through merging sustainable issues with active learning.

2.1.3.3.3 Environmental School Programs steps:

These programs affect the lives of students and teachers in schools and communities, focusing the inclusion of sustainable development programs, training, and education through the following:

- Forming environmental committees in schools.
- Encouraging the management of environmental programs.
- Preparing an environmental curriculum. (Thoresen et al., 2015)

2.1.3.3.4 Environmental Schools:

Environmental schools occurred simultaneously with the emergence of environmental problems that affected human life to make students understand their relationship with the environment and provide them with the knowledge and skills required to overcome surrounding environmental conditions (Hadzigeorgiou and Schulz, 2014). Schools play a pivotal role in enhancing the environmental awareness through environmental education, focusing on the following:

- Developing the factors of environmental education.
- Conducting community, cultural, and educational procedures, and activities.
- Influencing the behavior and awareness of citizens. (Al Qarwani, 2012)

2.1.3.3.5 Environmental Education

Environmental education usually focuses on building the relationship between people and their environment through an environmental awareness strategy and dissemination of guidelines and information via lectures, educational campaigns, and outdoor activities. Through environmental education, people can identify and understand environmental challenges and the existing problem and take part in solving the problem and making decisions.

The purpose of transformation toward environmental education is to save the planet and nature from further deterioration (Nwachukwu, 2014). Environmental education is defined as the

process of creating values and explaining concepts required for developing requested skills and knowledge for maintaining relationships between humans and their environment (Zhao, 2017).

Wan et al. (2014) argued that higher education leads to a better understanding of the environment in comparison to lower educational levels. It was also stated by Nwachukwu (2014) that environmental education plays a vital role in controlling environmental degradation as education and awareness are well-delivered to the public, law, and policy makers.

2.1.4 Partnership

Proper implementation of policies entails collaboration and involvement of concerned stakeholders not only at the governmental level, but also at the level of the private sector, NGOs, and other local parties. This fosters diffusion of innovation and development, improves productivity, and encourages projects funding (OCED, 2015). Therefore, the role of establishing partnerships is critical and supportive in planning, implementing, and evaluating the policies and related programs.

Definitions of Partnerships

OCED defines "partnership" as a collaboration for reaching positive required objectives where various parties follow several approaches and mechanisms (OCED, 2015, P 17; Menashy, 2019). Dr. Darraji (2014) describes partnerships as two parties or more involved through participation or ownership in a project. It is not only limited to participation in capital but also in working, managing, and contributing to production.

Many recent studies confirmed that the existence of partnerships is critical to transformation processes required to attain sustainable development goals as partnerships contribute to a wide range of primary roles such as launching projects, technology development, participation in enacting new policies, development of infrastructure, and funding (Westman and Broto, 2018; Bauer and Steurer, 2014).

Objectives of Partnerships

- Enabling governments to focus on formulating policies, setting priorities, and evaluating the implementation process, as other parties will take part in building infrastructure and providing public services.
- Integrating new qualifications and competencies to bear responsibility and risks.
- Offering regular review and supervision over the available budget.
- Avoiding the deterioration of assets and business facilities (Salah, 2018).
- Exchanging knowledge and experience among the various institutions.
- Providing added value through improving the quality of educational services.
- Enhancing the participation of governmental and non-governmental institutions in developing the educational sector.
- Providing the human and financial resources necessary to improve the educational outputs.
- Enhancing cooperation and responsibility by the community to introduce innovation to technologies and provided services (Alrowais, 2017).

Having successful partnerships constitutes the following principles (Salah, 2015):

- **Commitment:** each partner should be strictly committed to its role, pledging to fully implement the required actions.
- **Continuity:** suitable periods should be taken into consideration while implementing the programs within the agreed work framework and management methodology.
- **Transparency:** Being honest and clear with internal and external factors that occur during the partnership period.

Characteristics of community partnerships in education (Abdel Razeq, 2020):

- A cooperative process between the public sector and other sectors to develop the educational process.
- A contractual process based on agreements enhancing the developmental process.

- A cooperative partnership between people and community and other institutions based on effective citizenship.
- Strategic tools to fulfill sustainable development and improve education's quality.

2.2 The Dependent Variable: Environmental Conservation

2.2.1 Introduction:

Effective environmental conservation is becoming a necessity due to the expansion in urbanization, industrialization and population rates which resulted in excessive utilization of environmental resources and pollution. Therefore, protecting the environment has become a worldwide concern. Governments exert relentless efforts to stop the damage to nature. However, the measures and procedures taken are still not enough to prevent the deterioration of nature because they mainly concentrate on economic development rather than environmental conservation. Therefore, governments should enact specific policies for environmental conservation as an initial step for achieving sustainable development, taking into consideration continuous screening and assessment of environmental impact of all implemented environmental programs. Through this section, an overview of the environmental conservation definitions and dimensions, and environmental sustainability related to this topic will be clarified.

2.2.2 Related Definitions:

Environment includes multiple resources and situations that could be natural or artificial influencing living conditions on earth. **Environmental Protection** is the act of mitigating pollution, conserving natural resources, repairing damages, and making eco-solutions (Hill, 2017).

The global industrialization, urbanization, and rapid population increase bear the responsibility of carbon emissions, climate change, unsustainable agriculture, deforestation, and overgrazing; all of which are threatening to environmental conservation (Royal Government of Bhutan, 2012).

Conservation is the efficient use of environmental resources that give rise to people's welfare and development (Robson, 2014).

Conservation is the effective management and stewardship of natural resources such as air, water, soil, forests, minerals, and wildlife. **Preservation** is the status of leaving the resources unutilized or disturbed and prevention of any damages that may occur (Hassenzahl et al., 2017).

2.2.3 Environmental Conservation Success (Hartel et al., 2020)

Success of environmental conservation procedures usually depends on the following:

- Willingness and commitment of governments, the local community, and politicians.
- The existence of interdisciplinary partnerships including both the academic and non-academic parties.
- Considering community needs, social values, and diverse interests of concerned parties while planning the conservational strategies.
- Building local capacities and experiences to avoid the need for external interventions.
- Clarifying the conservation policies, work and accomplishments to the international community to gain support.
- Understanding current attitudes and impressions toward environmental conservation plans and engaging people in setting strategies and implementation.

2.2.4 Environmental Awareness

Maintaining environmental sustainability cannot be implemented without people's willingness to commit and participate in protecting the environment. Conserving the environment is every citizen's responsibility, which means that everyone in the community should behave wisely toward the environment and its resources.

2.2.4.1 Environmental awareness Dimensions:

Šarković and others (2016) confirmed that dimensions of an individual's environmental awareness are attitudes, behaviors, and readiness to participate in solving environmental problems. Also, Zeyadat (2013) stated that knowledge, attitude, and practices are three main dimensions of environmental awareness.

Environmental knowledge is the individualistic understanding of people's interaction with their environment and the way the societies are related and linked to the natural system (Kumud, 2014). Attitude indicates a person's ethical commitment which is formed and influenced by human environmental consciousness, or awareness. (Enger and Smith, 2016). Proper environmental practices are actions resulting from enhancing environmental awareness. Pro-environmental behaviors indicate caring for the environment such behaviors include efficient use of water and energy, consumption of eco-friendly products, less use of polluting vehicles and other actions positively contributing to the environment's safety (Handayani et al., 2021).

2.2.4.2 Measuring General Environmental Awareness

Many ways and tools are used for measuring the environmental awareness:

- The European Environment Agency Public Awareness Survey (2010).
- Public Awareness Indicator prepared by International Union for Conservation of Nature (2010).
- Determination of outcomes for pro-environmental behavior.
- Assessment of people's participation in environmental programs (Abe and Didham, 2013).
- The level of participation in an environmental program as a key indicator of awareness. (Kamaruddin et al., 2016)

2.2.5 Sustainable Development

Defined as development implemented within the limits of environment to fulfill needs using suitable strategies to have proper quality of life without compromising next generations' rights to meet their needs. There are three interacting factors influencing sustainable development: Environmental sound decisions, socially equitable decisions, and economically viable decisions (Hassenzahl et al., 2017).

2.2.5.1 Human interventions threatening Environmental sustainability:

- Excessive usage of non-renewable resources.
- Human activities that pollute the environment.
- Rapid growth of population.
- The utilization of resources at a faster pace than their natural replenishment. (Hassenzahl et al., 2017)

2.2.6 The first Dimension of Environmental Conservation:

2.2.6.1 Utilization of Resources

The fast-growing population rates accelerate the demand for natural resources in general, but the excessive usage of resources is more than the required need for survival. This, accordingly, undermines environmental and earth capacity to fulfill people's needs of resources. This leads governments to think about sustainable practices and proper strategies to maintain rational consumption of resources (Mkumbachi, et al., 2020). Misuse of environmental resources is one challenge facing developed countries, which threatens human existence due to the non-sustainable utilization of natural resources. (Hashi, 2020)

Environmental resources are the living and non-living components of the earth forming biophysical environment. (United Nations Statistics Division, 2013). Environmental resources should be utilized for achieving useful purpose, maintain recreation, landscapes, and wildlife, provide food, space, and support biological system. (Ola, 2019)

2.2.6.1.1 Sustainable consumption

An efficient way of consuming natural resources that ensures their existence and continuity. **The sustainable approach to conservation** implies wise consumption of resources without exhausting the environment. This requires taking action by adaptive management to prevent illegal activities, modifying a strategic action plan, overarching database, monitoring, and making policy changes (Chiras and Reganold, 2014).

2.2.6.2 The Second Dimension of Environmental Conservation:

2.2.6.2.1 Waste Circulation

Management of waste is one of the most pressing concerns of environmental conservation due to its dangerous effect on human health and environmental sustainability. All countries, especially the developing ones, are facing challenges in waste management including, but not limited to, improper waste collection systems, uncontrolled dumping and burning of waste, and lack of recycling or reusing abilities.

Waste circulation has a remarkable impact on reducing pollution and enhancing an appropriate waste management practice in places where waste threats have becoming widely obvious.

2.2.6.2.2 Circular Economy:

Circularity was formulated as a term in 1970. It has, however, recently expanded internationally. Policymakers and producers have adopted circularity instead of linearity to maintain business competitiveness (Duquet and Brunelle, 2020; Marinoudi et al., 2019).

Principles of Circular Economy:

- 3Rs (reduce, reuse, and recycle) (Ghisellini et al., 2016)
- Sustainable Design Strategies (Ellen MacArthur Foundation, 2013)

Benefits of Circular Economy:

- Minimizing the need for raw materials, water use and energy dependency.
- Enhancing saving by reducing operational costs.
- Maintaining sustainable supply chain rather than dependency on exporting input.
- Enhancing environmental benefits through decreasing pressure on the natural environment.
- Improving business competitiveness and providing employment opportunities. (Jarosch et al., 2020)

- Finding values in waste when closing the loop which is a super solution for environmental resilience and entrepreneurship sustainability. (Achillas et al., 2013)

2.2.6.3 The Third Dimension of Environmental Conservation:

2.2.6.3.1 Landscapes

Due to the increasing pressure from humans and dramatic changes in climate, it has become imperative to promote conservative efforts to protect one of the most important natural resources such as landscapes. Landscape conservation and protection primarily focus on maintaining the ecosystem and its deliverables which results in enhancing people's livelihoods and environmental sustainability.

2.2.6.3.2 Landscapes Definitions

The landscape is one of the key resources that not only reflects the society's behavior, but also affects the quality of life and well-being of citizens. Landscapes are connection links between diverse components of the natural environment and substantial spaces for human settlement and their various activities (Yansui et al., 2014).

The aim of Landscape protection is preventing the degradation of ecological structure and functioning resulting from destroying natural and cultural elements (Yansui et al., 2014; Shen et al., 2015).

2.2.6.3.3 Factors affecting the landscape conservation:

- Cultural factors including people's belief in the necessity to preserve forests and biodiversity (Allison, 2015).
- Historical and Recent climate changes and land Use (Lovejoy et al., 2019).
- Intensification of agriculture, demographic changes and urbanization, increased demand of services areas, development of renewable energy resources and creation of protected areas (Plieninger and Bieling, 2012).

2.2.6.3.4 Importance of Landscape conservation:

- Preserving ecosystems from degradation.
- Sustaining the long-term persistence of species populations (Mori et al., 2017).
- Enhancing the settlement of new potential habitats and increasing responsiveness to climate and land- use changes (Dondina et al., 2018).

2.3 Previous Studies

Previous relevant foreign, Arab and local studies are listed chronologically from the most recent to the oldest. They address the independent variable (Ministry of Education's programs) and dependent variable (environmental conservation). The previous studies are summarized in a way that clarifies a set of basic elements including, but not limited to, the study's objective, the study's period, the methodology used, the study's population and sample, and the two most important results raised. Also, this section encompasses the researcher's remarks on previous studies, research gap and present study characteristics in comparison to the previous studies.

2.3.1 Independent Variable: Ministry of Education's Programs

2.3.1.1 Foreign Studies

1. **(Morlacci, 2021) The role of Built Environment Education Programs in Environmental Education, A Master Thesis, Faculty of Social and Applied Sciences, Royal Road University, Canada**

The study purpose was to comparatively analyze programs for building environmental education in different countries (Canada, USA, Denmark, and Netherlands) to understand the resulted positive environmental effects. The methodology used was the descriptive analytical approach. The data was collected through a review of materials published about the related programs in addition to semi-structured interviews with programs' directors. The study reached several results, the most important ones were as follows:

- The effectiveness of educational programs is based on the involvement of various stakeholders of all types including individuals and organizations.
- Practical learning is more vital and inspirational to children than abstract learning so to lead to positive changes.

2. (Al Sare', 2020) The role of activities in developing environmental awareness among Middle School Students in Sabya Governorate, Turkey

The study purpose was to understand the activities practiced by female students in developing environmental and health awareness in the fifth elementary school in Sabya and the sixth elementary school of the Department of Sabya Education. The study followed the descriptive method using a questionnaire and interview as study tools. The study sample was 30 students and 10 female teachers. The study was conducted using standardized interviews with each group divided into two groups, each group consisted of 15 students. The study reached several results, the most important of which are:

- Implementing environmental activities increases the environmental awareness of female students.
- Students acquire some environmental skills while practicing the environmental related activities such as recycling and reusing.

3. (Kimaro, 2018) Integrating Environmental Education (EE) for Sustainability into Primary School Curriculum in Tanzania

The study purpose was to understand the educational stakeholders' perception on the integration of environmental education into the primary school curriculum in two regions of Tanzania: Dar es Salaam and Kilimanjaro. The study followed a qualitative methodology depending on in-depth interviews and document reviews for data collection. The study revealed the following results:

- There is a lack of motivation by teachers due to the to lack of resources, professional training, large class sizes, and workload; in addition to the lack of the government's prioritization of environmental matters.
- Schools' goals were not compatible with EE goals, where environmental education was marginalized, and little support was given to teachers regarding the implementation of environmental education.

4. (Erhabora and Dona, 2016) Impact of Environmental Education on the Knowledge and Attitude of Students Towards the Environment University of Benin, Benin, NIGERIA

The aim of the study was to study students' environmental knowledge and attitude and the relation between them. The researcher used University of Benin, Nigeria as a case study and followed the descriptive analytical method. The sample selected was 130 full-time environmental education students in University of Benin, Nigeria. A questionnaire was used as a data collection tool. The study reached several results, including:

- Having knowledge about environment does not necessarily influence students' attitude.
- Education contributes to implementing environmental goals and objectives in the country.

5. (Mwembezi, 2014) Assessment of Environmental Interventions by Local Government Authorities on the Quality of Environment Conservation in Three Selected Councils of Dodoma Region, Tanzania

The study focused on evaluating the environmental interventions implemented by Governmental Authorities on improving the environmental conservation. The researcher used three selected councils of Dodoma Region as a model of the study and followed a descriptive analytical method. The census technique was used for studying a population of 629 respondents (414 intervention implementer and 215 intervention designers). The study reached several results, including:

- Enhancing community Awareness is the leading major strategy to improve environmental conservation based on each council.
- Effective interventions focused on the optimal use of natural resources and knowledge dissemination.

6. (Andersson et al., 2013) Learning for the Future? Effects of Education for Sustainable Development (ESD) on Teacher Education Students

The study purpose was to identify whether the educational programs related to sustainable development can influence the beliefs of students and teachers. The University of Gothenburg and West University were the case studies. The study used the descriptive analytical method. The researcher used a survey for collecting information, and distributed it to two groups; the experimental group, which received the five weeks' sustainable development training (323) and control group (97) which did not receive the five weeks' sustainable development training. The study reached several results, including:

- There was a positive impact of education on sustainable development on almost all attitudes and perceptions, including personal responsibility and willingness to contribute to sustainable development. However, there was no noticeable effect on the control group.
- Students became more concerned about environmental issues after participating in environmental activities during the sustainable development course.

2.3.1.2 Arab Studies:

1. (Bin Hamza, 2021) Educational programs in Algeria and their role in environmental awareness: Programs of Fourth Grade Model.

The study purpose was to specify the role of educational programs in developing environmental awareness among the students in Algeria using an analytical approach for clarifying the educational programs and written texts targeting the students' awareness. The study revealed the following results:

- Environmental education through the curricula contributed to enhancing students' awareness of the seriousness of the environmental situation and various environmental phenomena.
- There is a weakness in applying the environmental theoretical information by school students; mainly related to defects in schools' indoctrination mechanisms.

2. (Hammouda, et al., 2020) The Role of Participatory Projects in Raising Environmental and Community Awareness: The Experience of Preparatory Year Students through the Design Fundamentals Exhibition at Imam bin Abdurrahman bin Faisal University.

The study aimed to raise environmental and societal awareness and indicate the extent of the importance of completing participatory projects in universities in order to provide a distinct visual perception in accordance with the available resources; and preparing a project to develop the skills of students. The study also included the implementation and follow-up with projects, and the distribution of roles to all parties participating in the exhibition. The study took University of Faisal ben Abd Rahman ben Al Emam as a model for the study, and the researcher used a comparative descriptive method, distributing a survey to the female students. The study reached several results, including:

- Female students do not accept participation in these projects without the participation of their teaching staff.
- Partnerships enhance innovation, responsibility, and enable the community to participate in development and solve relevant challenges.
- Inadequate role of the media leads to improper definition of the importance of participation and the role of community participation in all stages of development projects, building trust and supporting the link between residents and their environment.

3. (Sheta et al., 2019) The role of Educational Institutions in activating programs of International Institution of Environmental Education to achieve the sustainable Environmental Responsibility: Ecological Schools as model, Master Thesis, Domyat University, Cairo

The study aim was to introduce the education's theoretical frame for sustainable development, clarify the conceptual context for environmental responsibility and describe standards for activating the environmental education's programs. This study followed the descriptive analytical approach through describing the role of educational institutions within the programs of international institutions' programs of environmental education to achieve the sustainability of environmental responsibility. The researcher used an arbitrated scientific list of standards and

indicators for activating the relevant environmental programs as a tool. The study revealed several results such as:

- Educational Institutions are the most important entities for enhancing environmental responsibility for students.
- Educational institutions enhance students' environmental awareness regarding the importance of waste recycling, afforestation, and healthy behaviors, in addition to encouraging them to start their practical environmental projects.

4. (Sheta, 2019) Environmental educational requirements to achieve environmental responsibility, environmental schools as a model in Egypt

The study described the educational requirements necessary for achieving sustainable environmental responsibility. The researcher followed the descriptive-analytical approach by reviewing and presenting the relevant literature review, using environmental schools as a model for the study. The study revealed the following:

- Schools play an essential role in promoting students' environmental responsibility by providing them with sound habits, attitudes, and values that enhance environmental conservation.
- Educational institutions contribute clearly to the improvement of environmental education by implementing educational programs, and including the environmental dimension in the curricula.

5. (Yousef and Ibrahim, 2018) The Degree of Effectiveness of Non-Classroom Activities in Secondary School of the Educational Directorate of Qasabat Irbid and its Relation to National Belonging among Students from School Teachers Viewpoint

The study aim was to assess the degree of effectiveness of extra-curricular activities and their relation to national belonging at Qasabet Irbid's Education Directorate. The researcher followed the descriptive analytical approach, in which data was collected through a questionnaire distributed to 350 male and female teachers. The study revealed the following results:

- There is a high effectiveness rate of extra-curricular activities inside the secondary schools.
- Schools and teachers are important to promoting national belonging values toward protecting the community.

6. (Khalifa and Noureddine, 2018) The role of government institutions in Environmental Protection: The Ministry of Environment as a model, Algeria.

This study emphasized the role of the Ministry of Environment in protecting the environment through enhancing awareness and positive practices. The Ministry of Environment was the model for this study. The researcher followed the descriptive analytical approach where data was collected through reviewing records and statistics, a questionnaire, and interviews with intentional sample of managers and employees in the Ministry of Environment. The study reached the below results:

- Enactment of national suitable policies and plans, and implementation of strategies contribute to reducing environmental degradation.
- Environmental protection is an issue of the humanitarian community which requires mobilizing the efforts of all environmental actors and others in all institutions, official and non-official organizations.
- The Ministry of Environment's programs contribute to managing resources, confronting desertification, increasing landscapes, managing waste, building research centers, and activating environmental awareness activities.
- The educational institutions have a vital role in disseminating the culture of rationalizing the utilization of water not only through education but also by involving them in community concerns as key participants.

7. (Alrowais, 2017) The reality of community partnership in financing educational projects from the point of view of the leaders and agents of general education schools in the city of Dawadmi. Prince Sattam bin Abdulaziz University, Al-Kharj, Saudi Arabia.

This study examined the reality of community partnerships in financing educational projects. The public educational schools were presented as a model for this study. A descriptive method was applied and a questionnaire was used as a data collection tool. It was distributed to the population of all directors and assistants (124) at 54 public educational schools in Al Dawadmi. The study found the following results:

- Limited partnerships adversely influence the financing of educational projects.
- Lack of economic and financial planning and unclear mechanisms inhibit the development of educational resources.

8. (Aldosari, 2016) The reality of environmental education in public education in the Kingdom of Saudi Arabia.

The study focused on clarifying the reality of including environmental education in public education and the environmental problems addressed within the environmental public education in Saudi Arabia through using public schools as a model for the study. The researcher followed the descriptive documentary approach by revising the school courses and other related studies. The study revealed the following results:

- Lack of teachers' awareness hinders environmental education.
- Enhancing environmental education depends on designing strategic plans including goals, programs, activities, and initiatives prepared and implemented in partnership with various concerned parties.

9. (Al-Hashem, 2016), The effectiveness of an educational program to develop awareness of environmental behaviors for primary school students in Kuwait

The study aimed to shed light on the effectiveness of an educational-environmental program on developing environmental behaviors among students. The study focused on primary schools in Kuwait as the model, following the descriptive analytical approach and using Environmental

Awareness Scale to collect data from 98 randomly selected students from two schools. The results showed several points, including:

- The primary stage in schools is very essential to developing environmental knowledge and behavior.
- Environmental knowledge and students' behavior in primary schools are best developed through interacting with the environment, play, free learning, and excursions.

10. (Al Fowaihi, 2016) Environmental schools, a training program to develop environmental awareness for secondary schools' students, Al Jawf Area, Saudi Arabia

The study aim was to identify the effectiveness of a training program in developing environmental awareness among high school students in Sakaka city-Al Jawf area. The researcher followed a quasi-experimental method to describe the data collected from a random sample of (62) students divided equally into two groups: the control and experimental group.

- The environmental training program was effective in influencing the environmental awareness of students.
- There is a relation between students' environmental knowledge, values, and practices.

2.3.1.3 Local Studies

1. (Fatouh, 2018) The Role of Extra-Curricular Activities within UNRWA Schools in Gaza Governorates in Reinforcing Environmental Awareness among Students and Methods of Development, Palestine

The study aim was to understand the role of extra-curricular activities in enhancing the environmental awareness of UNRWA students. The study sample was UNRWA teachers who were randomly selected (344 out of 3324). The researcher followed the descriptive analytical

approach using the questionnaire as a data collection tool. The study reached the following results:

- The extra-curricular activities play an important role in enhancing the environmental awareness of students.
- The school morning program highly reinforces students' awareness of rationalizing water consumption.

2. (Al Farra, 2013) The role of school administration in enhancing secondary school students' awareness of environmental education in Gaza Governorates and ways of improvement, Palestine

The study aim was to specify the role of school administration in enhancing the awareness of environmental education for secondary school students in Gaza Governorates. The researcher followed the descriptive analytical approach; using a questionnaire as a data collection tool distributed to all study population, which comprised all science teachers (507) in the seven directorates of Gaza. The study revealed the following results:

- The school administration plays a vital role in developing people's awareness of environmental education.
- There are no statistically significant differences in the sample's responses about the role of school administration in enhancing the awareness of environmental education for secondary school students due to gender, service years and educational area. There were, however, statistically significant differences between the respondents' answers due to academic qualifications.

3. (Abu Sakor, 2012) The role of school administration in developing environmental awareness in Directorate of Education's school in South Hebron, Palestine

The study purpose was to examine the role of school administration in enhancing environmental awareness inside school. Schools in the educational directorate were the model for the study. The researcher followed the descriptive analytical approach and collected the data using a

questionnaire distributed to a random sample of 178 school headmasters. The results showed several points, including:

- The school administration's interest was evident in concerns for personal hygiene and school yards, but not for enhancing environmental awareness.
- The instructions of the educational directorate widely focused on the school environment and environmental awareness, and that was reflected on the awareness of students to some extent.
- There are no statistically significant differences in the responses of the sample group due to gender or academic qualifications.

4. (Al Qarwani,2012) The role of schools in environmental education and spreading environmental awareness among school students in Salfit Governorate from the teachers' point of view.

This study aim was to examine the role of schools in enhancing environmental education and environmental awareness following the descriptive analytical approach, and collecting data from a random sample of 215 male and female teachers. The study revealed the following results:

- Schools have an impact on enhancing environmental education and awareness of school students in Salfit Governorate from the teachers' viewpoint at ($\alpha \leq 0.05$).
- The variables (age, residence location, marital status, scientific qualification, and experience) do not have an effect on teachers' responses regarding school's role in environmental education and awareness.

2.3.2 Dependent Variable: Environmental Conservation

2.3.2.1 Foreign Studies

- 1. (Yusuf and Fajri, 2022) Differences in behavior, engagement and environmental knowledge on waste management for science and social students through the campus program, Syiah Kuala University, Indonesia**

The study was conducted to investigate the process of environmental education in higher institutions in parallel with various policies and programs applied for good waste management. The study followed the descriptive analytical approach collecting data through a questionnaire distributed to and recovered from 279 social science and science students who were randomly selected. The results showed that:

- The buying behavior of people was affected by green attitudes and students' majors, which has an impact on the waste produced.
- Effective programs and policies of environmental conservation have a significant effect on environmental behavior, engagement, and knowledge for better waste management.

2. (Stofejova, 2020) Environmental Awareness and its Influence on Household Consumption of Goods, Slovakia

The study aim was to examine the level of environmental awareness of consumers in the Slovak Republic and its effects on household consumption, treatment, and production and of household waste. The researcher followed the descriptive analytical approach where an online and printed questionnaire was used for the data collection. The researcher used a random sample consisting of 284 respondents, consumers of households in the Slovak Republic without the age restriction. The study reached several results, including:

- Despite the fact of having possibilities for separation in the household, the average amount of waste separated in a household was only about 50%.
- The main factor of consumption was quality; 60% of respondents preferred eco-friendly food, while 85% preferred buying non-prepacked fruit over packaged ones.
- Lack of environmental awareness influences consumers' willingness to do pro-environmental activities.

3. (Argo, 2016) Factors Influencing Household Outdoor Residential Water Use Decisions in Suburban Boston (USA)

The study focused on understanding residents' use of outdoor water and factors influencing residents' decisions toward usage of outdoor water. The researcher used Suburban Boston as a

model for the study as 250 residents were randomly selected from four towns which were also selected randomly. Regarding the collection of data, the researcher used pre and post surveys and in-person interviews. The study reached several results, including:

- Even though many participants found that water conservation was necessary, their willingness to implement conservation practices did not differ from those who thought that conservation is not important.
- Residents reduced their outdoor water use and increased their concern for other environmental issues after their participation in the study.
- Providing information about residents' property water needs allows them to modify their water use in a way that reduces their water use.

2.3.2.2 Arab Studies

1. (Omran, 2018) Environmental awareness and its role in rationalizing water consumption, Libya.

The study aimed to clarify the role of educational institution, households, and ministries in enhancing environmental awareness of rational consumption of water resources. The researcher followed the descriptive analytical approach through collecting data from its resources, analyzing literature and related studies. The study revealed several studies as followed:

- The educational institutions have a vital role in disseminating the culture of rationalizing the utilization of water not only through education but also by involving them in community concerns to be a key participant.
- Partnership and coordination between concerned parties is essential to achieve water awareness considering the pre-determined plans and program.

2. (Saliha, 2017) The role of environmental policies in deterring and stimulating economic institutions for the protection of the environment, Hasiba ben bo Ali University, Al Shalaf ,Algeria.

The study purpose was to understand the importance of environmental policies in conserving the environment. The descriptive and analytical approach was followed by studying and collecting data about three main topics: the environmental policies, the trade-off between economic and organizational tools in Algeria. The study reached several results, including:

- Environmental policies must continually evolve to keep pace with environmental changes and scientific progress and to confront environmental deterioration.
- Policies impose strict restrictions on consumption's activities to cope with environmental considerations.
- Depending only on environmental policies is not enough to protect the environment, other social and economic concerns should be taken into consideration.

3. (Abdel Ghani, 2013) Legal protection of the environment within the framework of sustainable development in Algeria.

The research purpose was to determine the extent of how the principles of sustainable development are reflected at the Algerian Legislation. The researcher presented Algeria as a model for the study. The researched followed the descriptive & analytical approach through analyzing the legal contexts and describing the related concepts. The study reached several results, including:

- Partnership between various actors such as public, private and NGOs clearly contribute to achieving a balance between the requirements of development and the requirements of environmental conservation.
- It is important to conduct an environmental assessment during the environmental planning process as a preventive way to avoid any future damages. Nevertheless, the lack of financial capacity may impede the process of environmental assessment and monitoring.

2.3.2.3 Local Studies:

1. (Kattoua, et al. ,2019) Barriers on the propagation of household solid waste recycling practices in developing countries: State of Palestine example

The purpose of the conducted research presented in this paper was to investigate the recycling barriers and offer an insight to the motivations that may encourage local population to increase participation in local recycling schemes. The study used Ramallah and Al-Bireh districts in Palestine as a model for the study. The study used the descriptive analytical approach using a questionnaire as the data collection tool. It was distributed to a random sample of more than 400 households. The study reached several results, including:

- Despite the communication actions performed locally, citizens are not inspired to separate the generated waste and dispose them in the marked bins. Financial incentives are a major motive for people's active participation in recycling.
- 73% of the respondents agree that the lack of knowledge about waste segregation processes is one of the barriers to recycling.

2. (Abu Taha, 2018) Recycling in Palestine and its role in achieving economic development in Palestine.

The study aimed to identify the role of recycling in Palestine. The study aimed to identify the role of recycling in Palestine and its impact on achieving economic development. The study used companies and factories working in recycling as a model for the study; following the descriptive analytical and measurement approach and using the questionnaire as the main tool for the study. The researcher distributed a survey to 90 institutions working in the field of recycling. The study reached several results, including:

- Recycling activities protect Palestinian lands from toxic substances.
- The recycling process contributes to reducing waste in landfills, preserving agricultural lands, reducing the pollution of sea water, and protecting groundwater from the waste sap resulting from landfills.

3. (Al-Khateeb, et al., 2017) Factors affecting the sustainability of solid waste management system—the case of Palestine

The objective of the research was to examine the predictors of sustainability in solid waste management (SWM) systems that can significantly contribute to the elimination of many waste

management problems. The study used Ramallah and Jericho cities in the West Bank of Palestine as a model for the study. The study followed the descriptive and analytical approach with a sample size of 370 households. The data was collected via a structured questionnaire and direct interviews with the respondents. The analysis followed the logistic regression model. The study reached several results, including:

- Dwelling, gender, level of education and having received education on waste management are the significant factors affecting the respondents' willingness to pay for improving the waste management services.
- Education on waste management promotes environmental protection practices and increases the understanding of the potential application of waste fractions and recycling schemes.

4. (Afanah, 2016) Waste management and health effects in secondary schools in Rafah, Gaza Strip, Palestine

The study purpose was to assess school waste management and determine the environmental knowledge, practices, and attitudes among public secondary school students in Rafah city. The study took public schools as a model for the study. A descriptive cross-sectional study was conducted for four governmental secondary schools, as the study sample consisted of 351 randomly selected male and female students. The data collection tools were a questionnaire, and waste sorting and monitoring of waste management. The results showed several points, including:

- Students who are with an excellent average enjoy higher levels of environmental awareness and that was because of the educational level of the father.
- The school environment highly influences personal hygiene and wellbeing of students.
- A good knowledge of the environment can eventually lead to the development of a positive attitude towards the environment.

2.5.4 Similarities to previous studies:

Table 2.1: Similarities to Previous Studies

#	Similarities	Related Studies
Independent Variables	Educational Programs/activities/projects/Interventions	(Morlacci, 2021),(Al Sare', 2020), (Mwembezi, 2014), (Andersson,et al.,2013),(Al-Najjar, 2019) (Al-Hashem, 2016) (Khalifa and Noureddine, 2018), ,(Kimaro, 2018), (Yousef and Ibrahim, 2018), (Al Fowaihi, 2016), (Hammouda, et al., 2020), (Fatouh, 2018), (Al Farra, 2013)
Dependent Variable	Environmental Conservation Variable	(Kattoua, et al. ,2019), (Abu Taha, 2018), (Al-Khateeb, et al., 2017), (Afanah, 2016), (Stofejova, 2020),(Yusuf and Fajri, 2022), (Argo, 2016), (Omran, 2018)
Study Tool	Questionnaire, Interviews.	(Morlacci, 2021), (Khalifa and Noureddine, 2018),(Kimaro, 2018), (Yousef and Ibrahim, 2018) (Argo, 2016), (Al-Khateeb, et al., 2017), (Al Farra, 2013).
Methodology	Descriptive Analytical Method	All the previous studies

2.5.5 Study Differences to previous studies

Table 2.2: Study Differences to previous studies

Study Differences to previous studies	
Study Problem	The current research differs from previous studies in the scope of the research problem, which focuses on clarifying the role of the Ministry of Education's programs in promoting environmental conservation, through assessing the implemented related programs in schools, and describing the related current and potential strengths, weaknesses, interventions and obstacles that may contribute to or impede environmental conservation. On the other hand, most previous studies clarified educational contribution to environmental awareness and environmental sustainability in general.

Study Objectives	Most Previous studies' objectives were about understanding environmental education and its relation to environmental awareness. The current study is more concerned with understanding the big picture of the effectiveness of the Ministry of Education's work, policies, and programs' contribution to environmental conservation.
Study Tools	The present study uses three tools for the data collection. It uses focus groups, a questionnaire, and interviews. Other previous studies only used a questionnaire, while others used both questionnaire & interviews for data collection.
Geographic Limit	The present study was applied in the public schools that are linked to the Ministry of Education in the Southern Palestinian governorates.
Study population	This study targeted headmasters, health school coordinators, and environmental club's teachers distributed in 50 public schools in the seven educational directorates in the five Gaza governorates

2.5.6 Research Main Characteristics:

- There are no previous studies, to the best of researcher's knowledge, which have discussed this topic or drawn a detailed picture of educational interventions related to environmental conservation applied at the governmental schools in the Southern Palestinian Governorates.
- It discusses the inclusion of environmental component into the MoE's programs.
- It provides an overview of educational programs applied in schools, evaluating their effectiveness of their interventions, strengths and weaknesses.
- It is distinguished for its thoroughness. The environmental and educational policies linked to environmental protection, institutional collaborations, and the efficacy of the programs implemented in public schools are clarified.

2.5.7 Research Gap:

Table 2.3: Research Gap

#		Current Studies	Previous studies
1	Spatial Gap	The present study targets the Southern Palestinian governorates in Palestine.	Previous Studies were conducted in various locations internationally, regionally, and locally.
2	Theoretical Gap	This study presents the concepts and definitions of the study variables, which described the Ministry of Education programs' contribution to environmental conservation and clarified the relevant policies, programs, and obstacles.	Foreign and Arab studies described the role of environmental awareness in households' consumption, waste management in schools, related barriers and their relation to economic development, and the role of extra curricula activities and school management on enhancing students' awareness.
3	Methodology Gap	This study is a quantitative study, followed a descriptive analytical approach through using many tools such as interviews, questionnaires, and focus groups.	The previous studies included both quantitative and qualitative researches. The researchers followed various methodologies encompassing descriptive analytical approach, descriptive documentary approach, measurement approach and a quasi-experimental method.
4	Knowledge Gap	This study discusses a specific topic which is the importance of giving attention to environmental awareness programs, which was ignored in light of the critical geopolitical situation in Gaza governorates and in the absence of governance.	The previous studies discussed general topics related to the role of school administration in promoting awareness and preserving the environment, in addition to barriers and factors affecting the environmental conservation which did not cover the contributions of policies, programs and partnerships of the Ministry of Education in promoting environmental conservation.

#		Current Studies	Previous studies
5	Practical Gap	This study was applied in the Ministry of Education offices, educational directorates, and public schools.	The previous studies were applied in secondary and elementary schools, universities, councils, households, Ministry of Environment, and various institutions.

Chapter 3

Environmental Status, Environmental Reality, Ministry of Education, and relevant Educational Programs at the MOE

3.1 The Environmental Reality in the Southern Palestinian governorates:

3.1.1 Introduction:

The 1999 Palestinian environmental law no. 7 represents the general legal framework regulating the rights and duties of environment protection and confirms the importance of raising public awareness. "Balance and clean environment is a human right and conserving the Palestinian environment for the current and future generations is a national responsibility" (WEQA, 2020). However, there are other factors influencing environmental sustainability, which are not limited to the population growth rates, unsustainable use of resources, poor management, and pollution.

The environment in Gaza governorates is unique and different from any other environment as the natural resources are exploited by both the Palestinians and ‘Israelis’. The environment is extremely affected by the Israeli occupation’s practices. That resulted in complex environmental problems that impeded implementing major strategic projects in various environmental fields. The failure to enforce environmental law has exacerbated environmental challenges related to people’s environmental awareness.

3.1.2 Overview:

Gaza Governorates are one of the most densely populated places on Earth, covers 378 square kilometers and inhabited by approximately 5,612 p/kms (PCBS,2022). United Nations indicates that the population in Gaza Strip will double in the coming years to reach the population density of more than 20,000 people per square kilometer in urban areas where the population of the Gaza Strip is 40% young people under the age of 14. (Hilles, 2021)

Based on Ma’an assessment report during the project of enhancing Palestinian Environmental Awareness and improving public participation in Environmental Governance in the Southern Palestinian Governorate, the results shows that environmental concerns rank low on public opinion with shallow background about environment and environmental challenges. Additionally, it has recognized that environmental issues have not been recognized when planning or implementing programs by institutions. Moreover, there is a lack of public participation in monitoring environmental impact and developing policies due to lack of public awareness on environmental related issues. (UNDP, 2014)

It is crucial to shed the lights on the complex conditions surrounding the environmental sector in Gaza Governorates including the political, social, and economic factors, which directly and indirectly affect the stability of environmental situation.

Table 3.1: Selected threats to the Palestinian Environment (after 2015) (Qumsiyeh, 2021)

Threats	Threat Ranking
(Urbanization, forest destruction, climate change, desertification)	Very High

Desertification and soil erosion	Very High
Urbanization and population growth	Medium
Rock Removal for construction	Very High
Uprooting trees	High
Land degradation	Very High
Climate Change	Medium
Overexploitation (Poaching, overfishing)	Very High
Pollution (Wastewater, solid waste, using of chemical pesticides)	Very High

3.1.3 Environmental Challenges facing the Palestinian Environment:

- Absence of legislation and law enforcement.
- Lack of environmental awareness.
- Overlapping and contradiction in roles and responsibilities among concerned parties.
- Lack of coordination among various sectors.
- Incompleteness and novelty of environmental legislation. (Water and Environmental Quality Authority, 2020).
- Lack of sovereignty over land (Hilles,2021).

3.1.4 The Palestinian Environment

3.1.4.1 Water Sector

Gaza governorates suffer from severe water deterioration. Water is required for domestic, agricultural, and industrial purposes. Water technical reports have stated that there is a sharp and broad drop in aquifer water level, which is the major source of water (94%), due to the excessive withdrawal that exceeds natural compensation from the rain feeding the reservoir. The

other water resources are 4% from water desalination plants and only 2% arrives from conveyor line from the Israeli entity (PWA, 2017).

It is worth mentioning that many governmental and non-governmental organizations take part in keeping water resources clean and protected. However, there are other practices implemented by the government and individuals that are not environmentally friendly such as:

- The excessive use of fertilizers and agricultural fertilizers. (PWA, 2018)
- Irrational domestic consumption of water. (PWA, 2021)
- Some landfill sites are not equipped with soil protection measures, which presents a potential contamination risk to groundwater resources due to waste leachate percolating through the soil layers in the event of rainwater. (World Bank, 2012)
- Underutilization of harvesting water and recycling wastewater.
- Insufficient management of the aquifer systems.
- Limited efforts exerted for activities such as rehabilitation of wells, wastewater recycling and implementation of small-scale desalination units. (United Nations, 2020)

3.1.4.2 Waste sector

Managing waste has become one of the most pressing issues in the Gaza Strip where many efforts are exerted to tackle waste pollution impact on soil, water, and other health crises as the waste sector is responsible for 19.2% of carbon emissions, according to a report by the Palestinian Central Bureau of Statistics in 2019. There are many challenges facing the waste sector the in Gaza Strip listed as follows:

- Total quantity of waste generated in the Gaza Strip is more than 1950 tons per day, with a .9 KG/capita/day. In the Gaza Strip, the waste generation rate in urban areas is twice the rate in rural areas (which generate less than 0.5 kg/capita), and citizens usually dump waste in fixed containers/bins without sorting them (Thöni and Matar, 2019).
- Managing large portions of waste is not sufficient as only a small fraction is collected for reuse (about 3%), and 1% is recycled, metal waste is collected to be sent abroad and

there is growing interest in handling e-waste. Only organic waste, few plastics and paper are recycled for re-reuse (PWA, 2013).

- Only 4% of waste is sorted. There is a very small and unofficial sector working at recycling and reusing plastic, paper, glass, and metal (Thöni and Matar, 2019).
- There is random burning of solid waste in some areas, generating complex amounts of carcinogenic toxins and gases. (Thöni and Matar, 2019).
- Absence of waste-related legislations and statistical data required for decision-making and control (Hilles, 2021).
- Random dumping is still a practice for special waste along roads or empty lands (MOLC-JICA, 2019). Burning of solid waste including plastic, petrochemicals, and industrial materials is also done (Thöni and Matar, 2019).
- Final disposal of waste is the main challenge facing waste management in Gaza where the approached methods for waste disposal are landfilling and random dumping; fires always take place in dumpsites and containers (MOLG-JICA, 2019; Di Maria et al., 2017).

3.2. Sustainable Development 2030 Plan

Based on the critical environmental situation clarified above, there are many local efforts exerted to change the current environmental situation. Those efforts are in parallel with launching the plan of Sustainable Development 2030. The Palestinian Council of Ministers formed a national committee responsible for the implementation of sustainable development goals. All Palestinian ministries must take into consideration the SDGs while setting objectives, enacting policies, and managing programs.

In 2016, the government in Palestine started drafting the national policies for implementation through the sectoral and cross-sectoral strategies. The sectoral strategies must comprise concerns of cross- sectoral strategies issues of youth, gender, and environment. Meaning, coordination must exist among various governmental institutions.

Cross Sectoral Strategy-Water and Environmental Quality Authority

Set a sectoral strategy and the cross-sectoral strategy, in line with sustainable development plan 2030, and in coordination with other governmental institutions, the private sector, and NGOs to achieve the environmental strategic goals, which are as follows:

- Controlling environmental pollution.
- Maintaining the natural environment and biodiversity.
- Adapting to climate change, and reducing emissions and desertification.
- Updating the environmental legislative system and empowering the environmental institutional framework.
- Enhancing environmental awareness (WEQA, 2020).

3.2.1 Partnership between the Ministry of Education and Water and Environmental Quality Authority for Implementation of Environmental-Educational Programs

Water and Environmental Quality Authority is the entity responsible for coordinating the environmental dimensions focusing mainly on Environmental conservation through partnerships with many ministries and governmental entities. The Ministry of Education is one of the ministries that is collaborating with the Water and Environmental Quality Authority regarding improving the school environment and environmental culture for students through developing curricula, extra-curricular activities, and inclusion of environmental values. In this context, the Ministry of Education leads the following activities:

- Launching school environmental clubs where hundreds of students and teachers are involved
- Building school gardens.
- Building and maintaining health units.
- Building water desalination plants inside schools.
- Following and monitoring the water cleanliness.
- Enhancing personal hygiene. (MoE, 2022)

3.2.1.1 The cross-sectoral environmental strategy of the MOE concentrated on the following:

- Including the environmental dimension in the curricula.
- Fostering the extra-curricular activities.
- Conducting environmental scientific research.
- Developing students' knowledge and behavior.
- Reducing waste and degradation of natural resources.
- Efficiently managing natural resources.
- Establishing eco-Friendly and green school buildings. (Environmental Quality Authority, 2021-2023), (Environmental Quality Authority, 2017)

Education is at the heart of the 2030 Agenda for Sustainable Development and includes education-related goals that fall within the framework of other sustainable development goals included in other programs concerned with environmental conservation as the Environmental, Water and Energy Sector.



Environment Sector

- Grants people needed skills to build sustainable cities.
- Understands the effects of climate change, accommodation, and mitigation requirements.
- Provides adequate educational training for maintaining natural resources
- Provides eco-friendly schools.
- Promotes hygiene behavior
- Encourages scouting environmental activities.

Water Sector

- Encourages rational utilization of water resources through training and education.
- Provides safe treatment of wastewater.
- Conducts health and environmental activities.

Energy Sector

- Contributes to decreasing levels of carbon emissions.
- Provides sustainable resources of energy in schools.
- Enhances knowledge and related behavior

Figure 3.1: Education's Cross Sectional Strategy 2021-2023

3.2.1.2 National Educational policies related to the Environmental Sector- Palestine:

- Continuously developing curricula for the interest of attaining SDGs.
- Harmonizing the outputs of technical and vocational education with the needs of development
- Guarantee the environmental sustainability and accommodating with Climate change.
- Enhance agriculture and rural communities.
- Improving the health and well-being of citizens. (Ministry of Education, 2022-2023)

3.3 The Ministry of Education in Palestine

An official governmental institution, which leads the education sector, that is responsible for planning, organizing, managing, and improving the educational system. The Ministry of Education is responsible for pre-school education and the school education (primary-elementary and secondary), vocational training and informal education (Ministry of High Education, 2017). There are many participants in the educational planning process including governmental institutions, the civil society, and international organizations concerned with the international offering of education. (Ministry of Education, 2021-2023).

Vision

The vision of the Ministry of Education is building a Palestinian society that has values, education, culture, and technology to produce knowledge and employ it in liberation and development.

Mission

The mission of the Ministry of Education is to “build an educational system that instills national and human moral values, and develops the foundations of research, passion, and knowledge, by empowering distinguished educational staff to be capable of making a positive change in the educational process. The outputs of the new educational system contribute to meeting the requirements of comprehensive development and creating promising economic opportunities that achieve the goals of the modern enlightened Palestinian society. (Ministry of Education, 2021-2023)

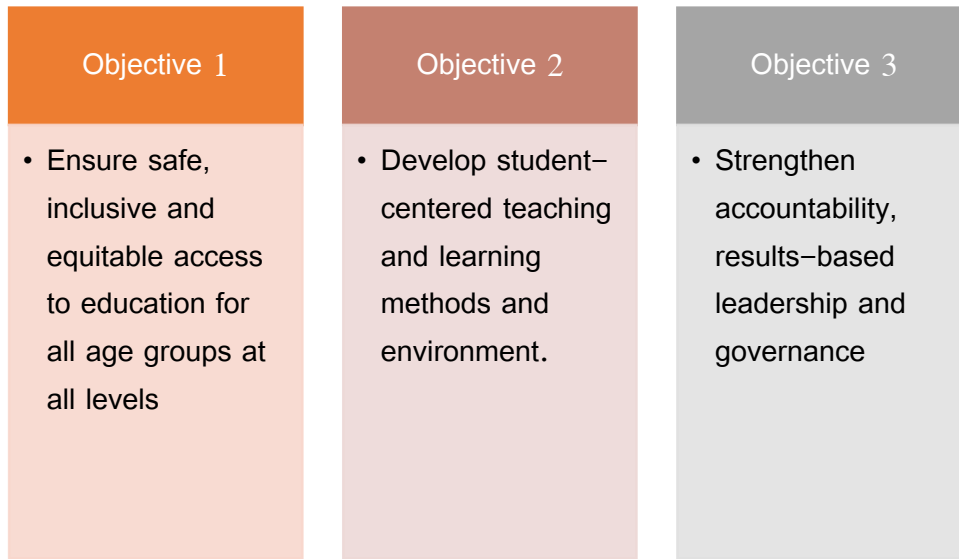
Objectives

- Increase enrollment levels for children at the educational age.
- Enhance the quality of education and learning.
- Develop program capabilities in management. (Ministry of Education, 2022)
:(06.08.2022)

Duties and Responsibilities

- Developing and supervising education in both public education and higher education sectors.
- Improving the quality of education in parallel with changing community’s requirements and global development.
- Providing equal educational opportunities to all those who reached the educational age.
- Developing the skills of the staff working at the educational sector. (Ministry of Education) :(06.08.2022)

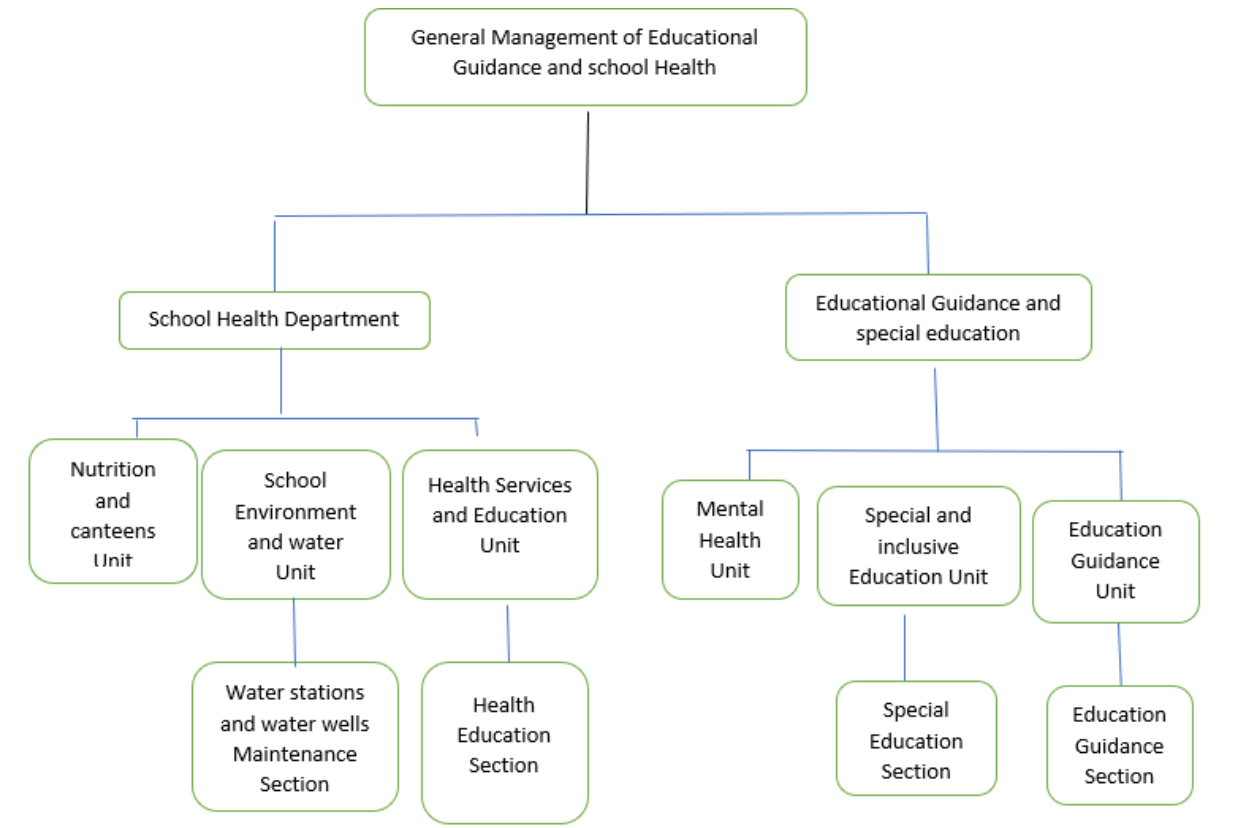
Education Operational Plan- Strategic Goals 2021-2022



(Ministry of Education, 2022)

Figure 3.2: Education operational plan -Strategic Goals 2021-2022

Structure of the General Management of Educational Guidance and School Health

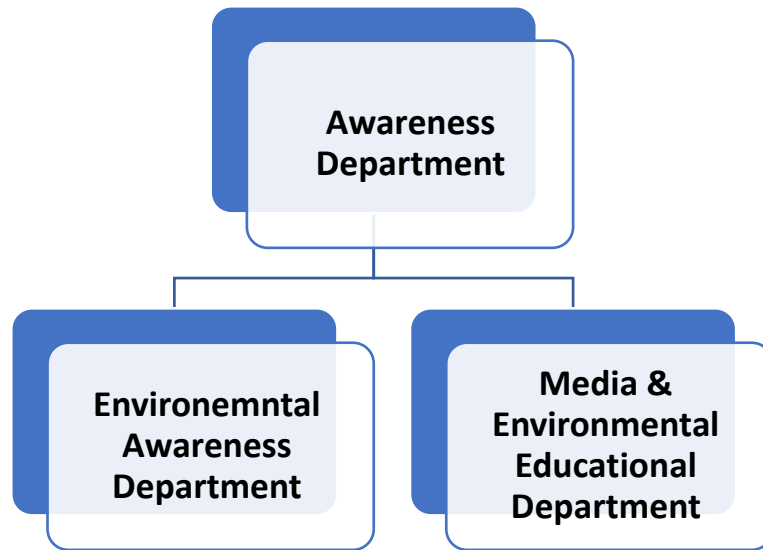


(Ministry of Education, 2022)

Figure 3.3: Structure of the General Management of Educational Guidance and School Health

3.4 Water and Environmental Quality Authority-Palestine

A Governmental institution responsible for the legislative process, strategic planning, preparing executive regulations, and monitoring and coordinating with relevant ministries and institutions. It aims for the enhancement of sustainable environmental development. However, preserving water and environment is a joint collective responsibility among various parties including governmental agencies, the private sector, and NGOs. The critical role of preserving the environment requires the involvement and coordination of economic, social, and media sectors (Water and Environmental Quality Authority, 2020).



(Abu Ghali, 2022)

Figure 3.4 Awareness Department- Water and Environmental Quality Authority

3.4.1 Awareness Department- Water and Environmental Quality Authority

The Awareness department/Planning and Awareness Unit at the Water Authority and Environmental Quality is the responsible party for planning and managing environmental awareness programs.

The Awareness department works closely with the Ministry of Education on fostering environmental awareness through conducting multiple programs and projects in coordination with the Ministry of Education targeting UNRWA and public schools (interview with Mr. Khaled Abu Ghali on 05.07.2022 and Mr. Mazen Al Batinji on 06.07.2022). The below programs started approximately in 2010 and are still active. The most recent programs were implemented in the beginning of 2022.

3.4.1.1 Educational/Environmental Programs

1. Environmentally Friendly Schools Program

Table 3.2: Environmentally Friendly School Program

Main Goal	Promoting environmental awareness among teachers and students
Objectives	Improving school environments through afforestation and garden rehabilitation.
	Enhancing environmental awareness.
	Activating the schools' environmental clubs.
Activities	Activating environmental clubs - awareness lectures - environmental exhibitions - environmental trips - environmental competitions - hosting schools - environmental camps - school morning programs - environmental corner).
MoE's Role	Following up with the work of schools' environmental clubs.
	Nominating the schools involved in the program.
	Coordinating with Gaza Municipality and Ministry of Agriculture for providing seedling to schools (20 seedling per school out of 1000 seedlings)
WEQA's Role	Implementing environmental awareness sessions for environmental clubs' members.
	Implementing environmental awareness sessions for schools' teachers.
	Implementing environmental competitions

(Water and Environmental Quality Authority, 2022)

2. Environmental Occasions' Revival Program

Table 3.3: Environmental Occasions' Revival Program

Objective	This program is implemented in partnership with many governmental and non-governmental institutions for celebrating the environmental and water occasions such as World Water Day, World Environment Day, and Arab Environment Day.
Main Activities	Conducting environmental awareness sessions about Palestinian environmental challenges.
	Holding school morning programs through the schools' environmental clubs.
	Doing school Initiatives for water conservation and afforestation campaigns.
	Preparing Murals, posters and publications regarding water conservation and related diseases.

(Water and Environmental Quality Authority, 2022)

3. Green spaces program:

Table 3.4: Green Space Program

Program Objective	A program that aims to promote environmental awareness and improve the school environment. It is implemented in coordination with the Water and Environmental Quality Authority targeting UNRWA and public schools
Main Activities	Conducting environmental awareness sessions.
	Building school gardens.
	Providing about 2000 seedlings for schools.
	Signing partnerships with other parties and working on schools' rehabilitation, building school gardens, installing a greenhouse, and establishing 10 educational parks.

(Water and Environmental Quality Authority, 2022)

Table 3.5: Main Partners to the Ministry of Education-Palestine, (Ministry of Education, 2022-2023)

Main Partners	Forms of Partnerships
Ministry of Labor	Achieve harmony between the needs of the labor market and education.
The Ministry of Higher Education and Scientific Research	Develop vocational and technical training.
Ministry of Social Development	Provide social services to needy families.
Ministry of Health	Provide medical services to students.
Water and Environmental Quality Authority	Improve the students' environmental culture and school environment.
the Palestinian Central Bureau of Statistics	Provide accurate and periodic relevant data.
the Ministry of Women	Consider fairness and gender issues
The Supreme Council for Youth and Sports	General administration of student activities.
Universities and government colleges.	Manage learning process for students and enhance their real qualifications.
The National Committee for Education, Culture and Science	Exchange knowledge and educational experiences between countries.
UNRWA	Manage around 12% of schools.
NGOs	Teachers training, research and development, educational initiatives
International Institutions	Co-funding the educational sector.

Chapter 4

Methodology and Procedures

This chapter presents the method used in this research to answer the research questions: research methodology, place of the research, data sources, research population, research tools, validity, reliability, data collection, data management, and statistical methods followed in the current research.

4.1 Study Methodology

The methodology followed in this research was the descriptive analytical approach due to its effectiveness in getting the required data for accomplishing the practical side of the research; i.e. to clarify the role of the Ministry of Education in enhancing environmental conservation depending on primary and secondary sources of information used to answer the research questions.

The descriptive-analytical method depends on the description of the phenomenon of the study subject, the data analysis, the relationship between its components, the relevant opinions presented, the effects, and indications and interpretations that go beyond such data. Therefore, it is the most appropriate research method for social reality (Bhatacherjee, 2012). Also, there is a strong connection between the statistical method and scientific research as it is one of the crucial elements related to study methodology where accurate statistical data can replace the qualitative impressions and take part in approving or rejecting the research hypothesis (Thamer, 2017).

4.2 Place of the Study

This research was conducted at public schools. It targeted 50 schools distributed across the seven educational directorates in the southern Palestinian governorates.

4.3 Data Sources:

The following are the two main sources that this research used:

- **Primary Sources:** sources that are related to the field study, the situation being studied, the opinions of respondents and analytical processing of the study subject based on a specific research tool designed purposely for the study: a questionnaire, interviews, and focus groups.
- **Secondary Sources:** the basis for preparation of literature review was through conducting a desk review of relevant published literature including books, previous studies, articles, and periodicals that contributed to making a scientific conclusion.

4.4. Study Population:

The research population consists of those working in governmental schools including school headmasters, health school coordinators, and environmental clubs' teachers at 50 public schools distributed across the seven educational directorates in the five Gaza governorates. It is important to note that the researcher chose only governmental schools based on the signed official agreement between MoE and WEQA since 2010 regarding the implementation of a cross-sectoral strategy (interview with Mr. Khalid Abu Ghali on February 20, 2022). Under this agreement, educational/environmental programs are carried out in coordination between the two ministries in accordance with certain objectives and duties. (Interview with Mr. Khalid Abu Ghali on February 20, 2022).

The educational programs referred to in this research are being implemented in 2022 and they are in progress all year long and repeated yearly as part of the MoE's strategic plan. The UNRWA schools are excluded from this study as the educational/environmental activities at UNRWA schools are implemented upon the request of the Agency's schools. According to

statistics from the Ministry of Education and the confirmation of School Health Departments' Heads at the educational directorates, only (105) of the questionnaire-related responses were recovered with a response rate (85.37%), out of the targeted population of (123) male and female school health teachers, environmental club teachers, and school headmasters.

Regarding the method of data collection, questionnaires were sent via email or WhatsApp to the study population at 50 public schools in coordination with the MoE and Heads of School Health Departments in the seven educational directorates. The following criteria were used in the selection of the 50 schools:

- The 50 schools were selected and nominated by the Ministry of Education for the implementation of the educational programs.
- The Educational programs were applied in those schools.
- The schools are within the grades between (7 -10).
- The schools are distributed across the seven educational directorates.
- The schools have enough space and big yards.

Table 4.1: Study Population

Educational Directorate	No. of collected Questionnaires	Total No.
Rafah	11	13
Middle	14	15
Khan Younis	11	10
Khan Younis East	8	10
Gaza East	19	25
Gaza North	28	28
Gaza West	14	22
Total	105	123

4.5 Study Tools:

4.5.1 Questionnaire

The researcher used the questionnaire tool to investigate the variables from the viewpoints of school headmasters, school health coordinators, and environmental clubs' teachers. The questionnaire was built based on the literature review and previous studies; using a simple language and avoiding duplication. Also, the Questionnaire was reviewed and validated by five arbitrators.

Questionnaire are divided into three sections:

Section 1: General demographic data about the target group, (educational directorate, age, gender, academic qualifications, job, job title, and school type)

Section 2: Respondents' responses about the independent variable (MoE's educational Programs) and its dimensions, which consists of 37 items distributed into three programs: 15 items for the first program (The Environmentally Sustainable Schools Program), 12 items for the second program (Environmental Occasions' Revival Program), and 10 items for the third program (Green space program).

Section 3: Respondents' responses about the dependent variable (Environmental Conservation), which consists of 14 items.

4.5.2 Interviews:

The interviews were conducted with school health departments' heads, senior and middle level management staff working at both MoE and WEQA in the Southern Palestinian Governorates. This tool was used to gather more detailed information about the degree of coordination between the two institutions, environmental conservation-related policies, initiatives currently in place that are aimed at public schools, and challenges encountered. The interviews were conducted before and after distributing the questionnaires, and the results of the interviews were a

supportive tool in questionnaire preparation and results interpretation. The interviewees table is added to the appendixes.

4.5.3 Focus Groups

The aim of using the focus group was to gain in-depth understanding of students' environmental awareness and the extent of their involvement in the educational/environmental programs conducted in schools. The researcher met two focus groups of students including both genders from 7-10 grades at two public schools in Khan Younis and North Gaza. A short discussion of around 30 minutes took place with male and female students about multiple questions raised by the researcher. The discussions in each focus group started with personal questions to dynamize and facilitate the process of exchanging information opinions. The two focus groups were as follows:

1. On October 9, 2022, the researcher met the first focus group, which comprised 10 female students at Haifa Primary School for Girls (grades 8–9), who are also members of the school health committee and environmental club.
2. On October 12, 2022, the researcher met the second focus group, which was made up of 11 male students (7–10) at Beit Lahia Primary School for Boys A, who are also members of the school health committee and environmental club. Focus group questions are added to the appendixes.

4.6 Validity & Reliability of the Study Tool

Validity of the tool refers to the extent to which the tool measures what it is designed to measure. The reliability of an instrument refers to the extent to which a questionnaire, observation, test, or any measurement procedure provides the same results on repeated trials (Shyamalima, et al., 2017).

The researcher examined the questionnaire validity through the theoretical and scientific rooting of the study variables, content validity, construct validity, internal consistency, and then examined the questionnaire's reliability.

4.6.1 Theoretical and Scientific Rooting- Study Variables:

Regarding the independent variable, the researcher considered three main educational programs as dimensions for the independent variable (Ministry of Education's Programs) based on field visits to the MoE and WEQA, in which the three programs (Environmentally Sustainable Schools Program, Reviving Environmental Occasions Program, and Green Spaces Program) were discussed and approved by senior management in both entities. Additionally, the three selected programs were taken into account and implemented based on the sectoral strategy of education (2021-2023) and previous studies such as (Sheta et al., 2019), (Fatouh, 2018), and (Al Fowaihi, 2016). Regarding the dependant variable, the dimensions (resources utilization, waste circulation, landscapes) were designed and chosen based on the WEQA's Cross-Sectoral Strategy, 2020-2023, which were also given a high priority by WEQA based on an interview with Mr. Khalid Abu Gali on 05.07.2022. In addition, previous studies such as (Stofejova, 2020), (Omran, 2018), and (Khalifa, Nouredine, 2018) implicated the current study's dependent variable's dimensions.

4.6.2 Validity of the Study Instrument

1. Content Validity

The first stage in making sure the tool effectively provides the accepted research framework is to check its content validity. To verify the content validity, it was submitted to **five** arbitrators, working in the educational and environmental fields, for review and modification. The experts evaluated, reviewed, and edited the questionnaire content in a period of two weeks, and the researcher took all comments and modifications into consideration, incorporating them in the research tool. The arbitrators' suggestions were considered when creating the questionnaire's final version. (Arbitrators names are attached in the appendixes.)

2. Internal Consistency:

The internal consistency of the questionnaire was the first statistical test conducted on the collected data from the pilot study. The internal consistency test was conducted by measuring the correlation coefficients between each paragraph and the dimension to which it belongs.

In statistics, different correlation coefficients can be used depending on the variable types (numeric or nominal); in this study, the variables were numerical, so the Pearson correlation coefficient was applied. As it is clarified in table (4.2), the correlation coefficient between each paragraph in the field and the total degree of the field to which the paragraph belongs is statistically significant at a significance level of 0.05. Thus, it can be argued that the parameters of this field are consistent and valid to measure what they were set for.

Table 4.2: The correlation coefficient between each paragraph in the field and the total degree of the field (Educational Environmental Programs)

No.	Paragraph	Correlation Coefficient	p-value
The Environmentally Sustainable Schools Program			
1.	The school distributes printed awareness brochures about environmental conservation.	0.711	0.000*
2.	The school provides posters or murals aimed at raising environmental awareness	0.724	0.000*
3.	The school conducts environmental awareness sessions for students.	0.667	0.000*
4.	The school conducts environmental awareness sessions for teachers	0.735	0.000*
5.	The school conducts environmental awareness sessions for parents.	0.687	0.000*
6.	Teachers receive training to implement the environmental activities of the Environmentally Sustainable Schools Program	0.612	0.000*
7.	The school is interested in forming and activating the environmental club	0.588	0.000*
8.	Schools' Environmental clubs promote environmental awareness through learning by practice	0.685	0.000*
9.	The school organizes environmental trips to educate students about the Palestinian environment	0.698	0.000*
10.	The school uses school radio to educate students about the importance of environmental conservation	0.739	0.000*
11.	The program encourages interactive extra-curricular activities, directly related to the community and the surrounding environment	0.678	0.000*
12.	The Environmental Club educates students about solid waste management and its safe disposal	0.814	0.000*
13.	Students actively participate in recycling and reuse of waste activities	0.687	0.000*

No.	Paragraph	Correlation Coefficient	p-value
14.	Students demonstrate willingness and readiness to participate in the activities of the Environmentally Sustainable Schools Program	0.699	0.000*
15.	The activities of the program positively affect the change of behavior and environmental attitude in the school (litter removal - cleanliness of facilities and yards - rationalization of resources' consumption)	0.722	0.000*
Environmental Occasions' Revival Program			
1.	The school provides a calendar of local, Arab, and international environmental events	0.685	0.000*
2.	Teachers and students participate in reviving the environmental occasions	0.725	0.000*
3.	There are various program's activities implemented (hosting experts - school radios...)	0.771	0.000*
4.	Teachers participate in guiding students towards rationalizing water, energy consumption and maintaining vegetation cover in schools	0.698	0.000*
5.	There are partnerships with related parties to revive environmental occasions	0.666	0.000*
6.	Partnership with other institutions contributes to the effective implementation of program's activities.	0.724	0.000*
7.	The school shares the news of the implemented activities with the students and publishes them on the school's page and social media channels	0.598	0.000*
8.	The program focuses on instilling environmental concepts while implementing environmental activities	0.760	0.000*
9.	The program aims to enhance the environmental awareness of students	0.674	0.000*
10.	The Program focuses on enhancing the awareness of different segments of society	0.663	0.000*
11.	Students show interest in participating in environmental activities within this program	0.627	0.000*
12.	There is an improvement in the environmental behavior of students in the school	0.821	0.000*
Green space program			
1.	The school is interested in putting up signboards inside the school urging students to take care of the trees	0.685	0.000*
2.	The program contributes to educating students about the importance of vegetation cover for environmental conservation	0.725	0.000*
3.	Teachers participate in planting seedlings	0.782	0.000*

No.	Paragraph	Correlation Coefficient	p-value
4.	Students participate in planting seedlings	0.854	0.000*
5.	Other actors besides the Ministry of Education contribute to facilitating afforestation activities	0.741	0.000*
6.	The school provides awareness sessions for students on protecting school gardens.	0.675	0.000*
7.	The school provides awareness sessions for teachers on implementing activities related to protecting school gardens	0.792	0.000*
8.	The program contributes to improving students' understanding and attitudes to the negative repercussions resulting from neglecting trees.	0.754	0.000*
9.	The program enhances students' knowledge of climate change and biodiversity.	0.774	0.000*
10.	Students demonstrate willingness to participate in green spaces program activities	0.658	0.000*

*Correlation is significant at the 0.05 level

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

Table 4.3: The correlation coefficient between each paragraph in the field and the total degree of the field (Environmental Conservation)

No.	Paragraph	Correlation Coefficient	p-value
1.	The school use signboards inside the school to rationalize water use	0.735	0.000*
2.	The school use signboards inside the school to rationalize energy use	0.714	0.000*
3.	Students rationalize water consumption in schools	0.698	0.000*
4.	Students rationalize energy consumption in schools	0.735	0.000*
5.	The school considers providing containers for sorting waste (plastic - paper.)	0.698	0.000*
6.	Students participate in school initiatives to implement solid waste management strategies through reduction, reuse, and recycling.	0.658	0.000*
7.	Students contribute to reducing the amount of waste produced daily	0.687	0.000*

8.	Students practically participate in afforestation in and around schools	0.698	0.000*
9.	Students behave correctly towards trees planted in school yards	0.635	0.000*
10.	The students regularly take care of the planted trees	0.741	0.000*
11.	The school administration participates in fixing damaged water taps or sewage leaks.	0.796	0.000*
12.	Teachers are interested in reporting any environmentally inappropriate behavior by students (take down trees - wasting drinking water and bathrooms).	0.744	0.000*
13.	The school participate in projects related to water desalination inside schools	0.778	0.000*
14.	Students inform school's administration when observing tree-damaging behavior by one or a group of students	0.754	0.000*

*Correlation is significant at the 0.05 level

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

As it is clarified in table (4.2 and 4.3): The correlation coefficient between each paragraph in the field and the total degree of the field to which the paragraph belongs is statistically significant at a significance level of 0.05. Thus, it can be said that the paragraphs are consistent and valid to be measure what it was set for.

3. Construct Validity

Construct validity is the second statistical test that is used to measure the correlation coefficient between one field and the main field to which it belongs.

As shown in table (4.4), the significance values are less than 0.05, so the correlation coefficients of all the fields are significant at 0.05, so it can be said that the fields are valid to measure the main aim of the study.

Table 4.4: Correlation Coefficient of Each Field and the Whole of Questionnaire

No.	Paragraph	Correlation Coefficient	p-value
1.	Educational/ Environmental Programs	0.785	0.000*
2.	The Environmentally Sustainable Schools Program	0.724	0.000*
3.	Environmental Occasions' Revival Program	0.765	0.000*
4.	Green space program	0.798	0.000*
5.	Environmental Conservation	0.778	0.000*

*Correlation is significant at the 0.05 level

Source: Prepared by the researcher based on the outputs of the applied results of the study using the SPSS Program.

4.6.3: Reliability of the Study Instruments

The reliability of the questionnaire was measured by applying Cronbach's Alpha test to the questionnaire fields. This test is used to measure the reliability of the questionnaire fields and the mean of the whole fields of the questionnaire. The value of Cronbach's Alpha coefficient lies between 0 and 1. The higher the value of Cronbach's Alpha coefficient, the higher the reliability of the measured items, and it equals the square root of the Cronbach's Alpha coefficient.

The value of Cronbach's Alpha coefficient for each field is as shown in Table (4.z5): Cronbach's Alpha for each field of the questionnaire and the main fields. The value of Cronbach's alpha coefficient is relatively high, reflecting the high reliability of questionnaire paragraphs. This indicates excellent reliability value for the entire questionnaire.

Table 4.5: Cronbach's Alpha for each field of the questionnaire and the entire field

No.	Paragraph	Cronbach's Alpha	p-value
1.	Educational/ Environmental Programs	0.789	0.000*
2.	The Environmentally Sustainable Schools Program	0.801	0.000*
3.	Environmental Occasions' Revival Program	0.778	0.000*
4.	Green space program	0.792	0.000*
5.	Environmental Conservation	0.812	0.000*

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

Checking the validity of the questionnaire

The researcher verified the validity and reliability of the questionnaire. Based on the results, the researcher can rely on the tool and start analyzing the descriptive results and answering the questions of the study.

4.7 The statistical methods used in the study

The data was analyzed using a computer software program; i.e., the Statistical Package for Social Sciences (SPSS) program, where the following statistical tools were used:

- Frequencies and percentages: to describe the study sample.
- Mean, relative importance index (RII) and standard deviation.
- Cronbach's Alpha test to check the reliability of the questionnaire.
- Correlation Coefficient to measure the degree of correlation: This test is based on studying the relationship between two variables. The researcher used it to calculate the internal consistency as well as to study the relationship between the variables.

- T-test in the case of a single sample (T-Test) is used to identify whether the average response score has reached the mean score of 3, or was less or more than that. The researcher used it to verify the significance of the average for each theme of the questionnaire.
- T-test in the case of two samples (Independent Samples T-Test) is used to see if there are statistically significant differences between two groups of data.
- One Way Analysis of Variance (ANOVA) test is to see if there are statistically significant differences between three or more groups of data.
- Scheffe' Test for multiple dimensional comparisons and to identify the direction of the differences.

Chapter 5

Results & Discussion

5.1 Introduction

This chapter includes detailed description of the findings resulted from interviews, focus groups and statistical tests results from the questionnaires, in which the data collected, and the findings are presented and discussed.

5.2 Respondents Characteristics

In this section, the researcher describes and analyzes the respondents' personal characteristics (Directorate, Gender, Age, Academic qualifications, Job, Job title, and School type).

Table 5.1: Distribution of Respondents (no. of respondents=105)

		Frequency	Percent%
Directorate	Gaza North	28	26.7
	Gaza East	19	18.1
	Gaza West	14	13.3
	Khan Younis	11	10.5
	Khan Younis East	8	7.6
	Middle	14	13.3
	Rafah	11	10.5
Gender	Male	44	41.9
	Female	61	58.1
Age	30-22	6	5.7
	38-31	27	25.7
	44-39	32	30.5
	More than 45 years	40	38.1
Academic Qualifications	Bachelor	74	70.5
	Higher studies	29	27.6
	Others	2	1.9
Job	School Head	46	43.8
	Teacher	59	56.2
Job Title	School Head	46	43.8

		Frequency	Percent%
	Environmental Club Teacher	22	21.0
	School Health Coordinator	37	35.2
School Type	Girls	51	48.6
	Boys	44	41.9
	Co-Education	10	9.5

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

The criterion adopted

To quantify the responses into scores, the researcher used the five-point Likert scale coding the responses as 1= strongly disagree, 2= Disagree, 3= Agree to some extent, 4= Agree, 5= Strongly agree. Also, the arithmetic mean and relative weight indicators are used to determine approval levels.

Table 5.2: The criterion adopted in the study

Likert Scale	arithmetic Mean	Relative Importance Index	Result
Strongly disagree	1 less than 1.8	20% less than 36%	Very Low
Disagree	1.8 less than 2.6	36% less than 52%	Low
Agree to some extent	2.6 less than 3.4	52% less than 68%	Medium
Agree	3.4 less than 4.2	68% less than 84%	High
Strongly Agree	4.2 to 5	84% to 100%	Very High

Source: prepared by the researched depending on 5-points Likert Scale.

5.3 Questionnaire Results

The main research Question

To achieve the objectives of the study, the researcher formulated a set of questions and answered them through the data collected from the questionnaire, interviews, and focus groups.

The first main question:

To what extent the educational programs contribute to enhancing environmental conservation in the public schools in the southern Palestinian governorates?

This question is divided into the following sub-questions:

- 1. To what extent the Environmentally Sustainable Schools Program contributes to enhancing environmental conservation in the public schools in the southern Palestinian governorates**

To answer the first sub-question, the mean, relative importance index (RII) and standard deviation were calculated for each item related to the Environmentally Sustainable School Program, and the results are shown in table (5.3):

**Table 5.3: Mean, SD, RII, Test value- and P-value
(Environmentally Sustainable Schools Program)**

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value Sig.	Rank
1.	The school distributes printed awareness brochures about environmental conservation.	3.89	0.94	77.7%	9.62	0.000	6
2.	The school provides posters or murals aimed at raising environmental awareness	4.01	0.89	80.2%	11.58	0.000	4
3.	The school conducts environmental awareness sessions for students.	3.95	0.89	79.0%	10.94	0.000	5
4.	The school conducts environmental awareness sessions for teachers	3.45	0.98	69.0%	4.68	0.000	13

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value Sig.	Rank
5.	The school conducts environmental awareness sessions for parents.	3.59	0.95	71.8%	6.39	0.000	11
6.	Teachers receive training to implement the environmental activities of the Environmentally Sustainable Schools Program	3.20	1.03	64.0%	1.99	0.051	15
7.	The school is interested in forming and activating the environmental club	4.06	0.83	81.1%	13.05	0.000	3
8.	Schools' Environmental clubs promote environmental awareness through learning by practice	3.85	0.93	77.0%	9.36	0.000	7
9.	The school organizes environmental trips to educate students about the Palestinian environment	3.50	1.03	70.1%	5.02	0.000	12
10.	The school uses school radio to educate students about the importance of environmental conservation	4.30	0.87	86.1%	15.41	0.000	1
11.	The program encourages interactive extra-curricular activities, directly related to the community and the surrounding environment	3.84	0.87	76.8%	9.90	0.000	8
12.	The Environmental Club educates students about solid waste management and its safe disposal	3.61	1.00	72.2%	6.22	0.000	10
13.	Students actively participate in recycling and reuse of waste activities	3.41	1.08	68.2%	3.42	0.001	14
14.	Students demonstrate willingness and readiness to participate in the activities of the Environmentally Sustainable Schools Program	3.81	0.86	76.2%	9.69	0.000	9
15.	The activities of the program positively affect the change of behavior and environmental attitude in the school (litter removal - cleanliness of facilities and yards - rationalization of resources' consumption)	4.07	0.76	81.4%	14.30	0.000	2
	All items	3.77	0.69	75.4%	11.33	0.000	

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

The results mentioned in table (5.3) refer to a set of facts that clarified as follows:

- There is an agreement among the respondents on the paragraphs related to the contribution of the Environmentally Sustainable Schools Program to enhancing environmental conservation in the public schools in the southern Palestinian governorates. The total mean of all items was (3.77 - total score of 5), standard deviation (0.69).
- The mean of the paragraphs ranged between (3.20 - 4.30), and standard deviation between (0.76 - 1.08), where the highest mean was related to item no. (10) "School uses school morning program to raise awareness of students about the importance of environmental conservation" with a mean of (4.30) and a standard deviation of (0.87), and in the last rank was item No. (6) "Teachers receive training to implement the environmental activities of the Environmentally Sustainable Schools Program", with a mean of (3.2) and standard deviation of (1.03).
- To test the relationship between the application of the Environmentally Sustainable Schools Program and enhancing environmental conservation in the public schools in the southern Palestinian governorates, the correlation coefficient was calculated between the independent variable (Environmentally Sustainable Schools Program) and dependent variable (enhancing environmental conservation). Results presented in table (5.3) show that the significance value is less than 0.05 (P-value < 0.05), and thus the relationship is statistically significant at $\alpha \leq 0.05$ with correlation coefficient (0.799). Therefore, the relationship between Environmentally Sustainable Schools Program and enhancing environmental conservation is strong. That means Environmentally Sustainable Schools Program contributes to enhancing environmental conservation in the public schools in the Southern Palestinian governorates.

Table 5.4: Correlation coefficient between Environmentally Sustainable Schools Program and Enhancing Environmental Conservation

Environmentally Sustainable Schools Program	Statistic	Enhancing environmental conservation
	<i>r</i>	*0.799
	<i>P</i> -value	0.000
	<i>N</i>	105

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

The results mentioned in table (5.4) refer to the followings:

- The agreement among respondents towards the level of contribution of the Environmentally Sustainable Schools program to enhancing environmental conservation (RII 75.4%) indicates the importance of this program in creating an environmentally friendly school for the students. Some efforts are exerted by the Ministry of Education toward promoting environmental conservation as it is a part of the Ministry's strategic plan. This program comes also within the agreement of achieving the sectoral and cross sectoral strategies related to the environment. Moreover, this result shows there are some environmental activities implemented at schools which agree with some interviewees' confirmation that this was a part of programs implemented in coordination with WEQA. This result is compatible with the study of (Al Fowaihi, 2016), (Fatouh, 2018), (Omran, 2018), (Al-Khateeb, et al., 2017). However, the researcher see that more work should be done regarding the program of Sustainable Environmentally Schools' program which partially neglects teachers who are forefront of providing students with required knowledge. And it is evident that despite the fact of some work done in schools, there is a clear negligence of waste management initiatives, lack of training sessions offered to teachers and parents, and few extra curricula activities are executed.
- On the other hand, the result of the first question contradicts with the study of (Kimaro,2018), which revealed that environmental education programs have been ignored and marginalized in teaching and there was no priority given to them. Also, the study of (Erhabora, Dona, 2016) does not agree with the first question's result that having knowledge about environment does not necessarily influence students' attitude.

Also, the result of the focus group contradicts this result, which showed a clear difference between male and female students, that is, the programs have a limited impact on students' environmental knowledge especially males, this is due to the nature of male students who are less disciplined and focused, besides the lack of specialized curricula or guiding books negatively affect the students' knowledge

- Also, it is evident that there is a positive agreement among respondents on items (2), (7), (10), and (15). Regarding item 10, "The school uses school morning programs to educate students about environmental conservation" ranked the highest as the RII was 86.1%. The researcher explained this with reference to the school's participation in activating the involvement of students in school radio programs following the extracurricular activities method in enhancing students' environmental and health practices, which constitutes a part of the Ministry of Education's strategic plan. The Ministry of Education is usually concerned about sending correspondences to schools for the activation of such initiatives in the radio morning program. Based on an interview with Mr. Mazen Al Batniji, Head School Health and Water Department at the MoE on 10.04.2022, he said that the school radio program is considered as a tool used on a daily basis by the health and environmental clubs to raise awareness about the environment. The radio morning program activities are executed by, through and to students. It seems that school administrations show interest in activating school morning programs, where they assign them to certain teachers for review and preparation. Moreover, school radio programs contribute to the cognitive and social formation of students more than traditional lessons as they depend on audible discourse and sound effects, offering a platform to display various experiences, topics, and environmental concerns that enrich students' environmental background. This result is compatible with the focus groups results. The focus groups explained how school morning programs are one of the remarkable activities affecting students' environmental knowledge and practices. This result was also in parallel with the study of (Fatouh, 2018) which explained that school radio programs reinforce students' awareness of rationalizing water consumption. Also, the study of (Yousef and Ibrahim, 2018) agreed with this result, stating that extracurricular activities, such as school morning programs influence students' values and responsibility towards the school and the community. In addition, the study of (Al-

Khateeb, et al., 2017), and (Al Sare', 2020) stated that education on waste management promotes environmental protection practices and increases the understanding of the potential application of waste fractions and recycling schemes.

- Regarding paragraph no. (2) "The school provides posters or murals aimed at raising environmental awareness", got approval by the respondents with RII of (80.2%). Posters and murals are policy tools used and encouraged by the MoE to enhance students' environmental awareness (based on an interview with Dr. Abdelkarim Al Majdalawi on 24.08.2022). Also, educational posters/murals are not only provided within the Environmentally Sustainable Schools Program but also through the school's regular activities or, sometimes, local communities.
- Moreover, item no. (7) "The school is interested in forming and activating the environmental club" got an agreement from the respondents with RII of (81.1%), which showed that the work of environmental clubs and the school health committee is essential in schools. The MoE sends guidelines and brochures to schools' management encouraging them to form and activate environmental clubs and health committees which are responsible for implementing the relevant projects. These results agrees with the results of the interview with Dr. Abdulkarim Al Majdalawi (24.08.2022) who confirmed the role of the MoE in circulating bulletins and instructions to impose the necessary interventions, using various educational tools to promote relevant policies through field visits, training courses, environmental clubs, publications, websites, morning programs and television programs, school curricula, events, activities, posters, and murals that enhance students' behavior and understanding towards the surrounding environment.
- In addition, the respondents agree (RII 81.4%) on item (15) "The activities of the program positively affect the change of behavior and environmental attitude in the school (litter removal - cleanliness of facilities and yards - rationalization of resources' consumption)", this result reflected the fact that this program is a part of the MoE's strategic plan to provide a clean and safe environment and to enhance students' environmental awareness through environmental education's activities, noting that students spend around 5 hours a day in the school under the supervision and guidance of teachers. This result agrees with the opinions of the focus group students who confirmed

that practical activities, and teachers' guidance enhance their environmental attitude at school, their houses, and public places.

2. To what extent the Environmental Occasions' Revival Program contributes to enhancing environmental conservation in the public schools in the southern Palestinian governorates?

To answer the second sub-question that measures the extent to which the Environmental Occasions' Revival Program contributes to enhancing environmental conservation in public schools in the governorates of southern Palestine; the mean, relative importance index (RII) and standard deviation were calculated for each item related to the Environmental Occasions' Revival Program, and the results are shown in a table (5.5):

**Table 5.5: Mean, SD, RII, Test value- and P-value
(Environmental Occasions' Revival Program)**

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value Sig.	Rank
1.	The school provides a calendar of local, Arab, and international environmental events	3.20	1.07	64.0%	1.92	0.058	12
2.	Teachers and students participate in reviving the environmental occasions	3.92	0.90	78.5%	10.57	0.000	5
3.	There are a various program's activities implemented (hosting experts - school radios...)	3.83	0.88	76.6%	9.63	0.000	9
4.	Teachers participate in guiding students towards rationalizing water, energy consumption and maintaining vegetation cover in schools	3.99	0.86	79.8%	11.80	0.000	4
5.	There are partnerships with related parties to revive environmental occasions	3.44	0.92	68.8%	4.88	0.000	10
6.	Partnership with other institutions contributes to the effective implementation of program's activities.	3.43	0.93	68.6%	4.73	0.000	11

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value Sig.	Rank
7.	The school shares the news of the implemented activities with the students and publishes them on the school's page and social media channels	4.04	0.87	80.8%	12.30	0.000	2
8.	The program focuses on instilling environmental concepts while implementing environmental activities	4.03	0.85	80.6%	12.42	0.000	3
9.	The program aims to enhance the environmental awareness of students	4.09	0.77	81.7%	14.38	0.000	1
10.	The Program focuses on enhancing the awareness of different segments of society	3.84	0.84	76.8%	10.16	0.000	8
11.	Students show interest in participating in environmental activities within this program	3.89	0.86	77.7%	10.57	0.000	6
12.	There is an improvement in the environmental behavior of students in the school	3.88	0.77	77.5%	11.69	0.000	7
	All items	3.80	0.68	76.0%	11.92	0.000	

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

The results mentioned in table (5.5) refer to the followings:

- There is an approval by the respondents on the paragraphs related to the contribution of the Environmental Occasions' Revival Program to enhancing environmental conservation, the total mean of all paragraphs was (3.80 - total score of 5) , standard deviation (0.68), and the mean of the paragraphs ranged between (3.20 - 4.09), and standard deviations between (0.77 -1.07), and the highest mean was paragraph No. (9) which shows that the program aims to enhance the environmental awareness of students, with a mean (4.09) and a standard deviation (0.77), while paragraph (1) got the lowest rank by respondents "the school provides a calendar of local, Arab, and international environmental events" mean (3.2), standard deviation (1.07).

- To test the relationship between the Environmental Occasions' Revival Program and enhancing environmental conservation, the correlation coefficient was extracted between the independent (Environmental Occasions' Revival Program) and dependent variable (enhancing environmental conservation); the results are shown in table (5.6).

The results showed significance value less than 0.05 ($P\text{-value} < 0.05$), and thus the relationship is statistically significant at $\alpha \leq 0.05$. According to that, it can be said that the relationship between Environmental Occasions' Revival Program and enhancing environmental conservation is strong (correlation coefficient is 0.839). Meaning, the environmental Occasions' Revival Program contributes to enhancing environmental conservation in the public schools in the southern Palestinian governorates.

Table 5.6: Correlation coefficient between Environmental Occasions' Revival Program and Enhancing environmental conservation

	Statistic	Enhancing environmental conservation
Environmental Occasions' Revival Program	<i>r</i>	*0.839
	<i>P</i> -value	0.000
	<i>N</i>	105

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

- There is an agreement by the respondents on the contribution of the Environmental Occasions' Revival Program to enhancing environmental conservation, where the RII for all related paragraphs was 76%. This result can be explained that reviving environmental occasions were executed in coordination with partnership between MOE and WEQA and other related parties because of lack of fund as confirmed by Mr. Mazen Al Batinij (interviewed on 04.10.2022), who also stated that schools usually hold environmental events without a dedicated program, and this has become a recurring routine. The MoE sends correspondences to remind the schools in the seven educational directorates and to encourage them to celebrate the environmental occasions at their schools

- In addition, reviving environmental occasions is not only implemented by the MoE but also through partnerships between the MoE and WEQA and other concerned parties. This result agreed with (Erhabora and Dona, 2016) study which revealed that educational programs contribute to achieving environmental goals and objectives in the country. Also, the result was compatible with the study of (Mwembezi, 2014) which stated that enhancing community awareness through environmental interventions by a governmental authority is the leading major strategy to improve environmental conservation. Similarly, Andersson et al. (2013) was in parallel with this result, which revealed that students through their participation in educational program related to sustainable development became more concerned about environmental issues and more committed to contribute to sustainable development.
- Also, the study of Argo (2016) confirmed that providing information about residents' water needs allows them to modify their water use in a way that reduces it, which indicates the importance of the involvement of students in reviving environmental occasions to encourage them to become vital members toward protecting their environment. Furthermore, (Yousef and Ibrahim, 2018) confirmed the high effectiveness rate of extra-curricular activities including other educational programs inside secondary schools enhance the belonging and responsibility of students toward their community. This result agrees with focus groups' responses that environmental occasions' activities contribute to maintain students' environmental responsibility.
- Regarding paragraph No. (9) "the program aims to enhance the environmental awareness of students", RII (81.7%), it ranks the highest among the respondents. That is because the main aim of this program is to raise student's environmental awareness through making them involved in the environmental activities held in schools. This result agrees with the study of Fatouh (2018) that revealed the important role of extracurricular activities (educational programs) in enhancing the environmental awareness of students. Another study is that of Sheta (2019) which revealed that schools' programs played an essential role in promoting students' environmental responsibility.
- In addition to the above results, items no. (7) and (8) are positively agreed on by respondents, with RII of (80.8%) and (80.6%), respectively. As for item no. 7 "The school shares the news of the implemented activities with the students and publishes

them on the school's page and social media channels", the researcher explained that the MoE instructs each school to document and publish its news on its own website where every educational directorate, and school has their own webpage and should share their achievements and new. Based on an interview with Mr. Mazen Al Batniji on 04.10.2022, he confirmed that in each school there is an assigned teacher working as a media coordinator, who follows and reviews WhatsApp, Facebook pages, and reports published on the school's page. As for paragraph (8) "The program focuses on instilling environmental concepts while implementing environmental activities", RII (80.6%), there is also a positive agreement by respondents on this paragraph which reflects there are some activities implemented such as afforestation, awareness session, school radio programs and competitions, where there is a diversity to some extent in the executed activities and tools to have appropriate activities for each group age. However, the researcher see that those activities are not implemented properly, which needs to be re-planned and evaluated as the focus groups analysis results showed that students are not fully aware of essential environmental concepts.

3. To what extent the Green Space Program contributes to enhancing environmental conservation in the Governmental schools at the Southern Palestinian Governorates?

To answer the third sub-question, the mean, relative importance index (RII) and standard deviation were calculated for each item related to the Green Space Program, and the results are shown in table (5.7).

Table 5.7: Mean, SD, RII, Test value- and P-value (Green space program)

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value Sig.	Rank
1.	The school is interested in putting up signboards inside the school urging students to take care of the trees	4.04	0.91	80.8%	11.71	0.000	2
2.	The program contributes to educating students about the importance of vegetation cover for environmental conservation	4.01	0.81	80.2%	12.70	0.000	3
3.	Teachers participate in planting seedlings	3.80	0.89	76.0%	9.19	0.000	7
4.	Students participate in planting seedlings	4.09	0.86	81.7%	13.00	0.000	1
5.	Other actors besides the Ministry of Education contribute to facilitating afforestation activities	3.82	0.91	76.4%	9.25	0.000	6
6.	The school provides awareness sessions for students on protecting school gardens.	3.86	0.81	77.1%	10.79	0.000	5
7.	The school provides awareness sessions for teachers on implementing activities related to protecting school gardens	3.55	0.84	71.0%	6.71	0.000	10
8.	The program contributes to improving students' understanding and attitudes to the negative repercussions resulting from neglecting trees.	3.62	0.85	72.4%	7.48	0.000	8
9.	The program enhances students' knowledge of climate change and biodiversity.	3.59	0.83	71.8%	7.30	0.000	9
10	Students demonstrate willingness to participate in	3.92	0.82	78.5%	11.59	0.000	4

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value Sig.	Rank
	green spaces program activities						
	All items	3.83	0.69	76.6%	12.35	0.000	

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

The results mentioned in table (5.7) refer to the followings:

- There is an agreement by the respondents on the items related to the contribution of the Green Space Program to enhancing environmental conservation in the governmental schools in the southern Palestinian governorates. The total mean of all paragraphs was (3.83 - total score of 5) and standard deviation (0.69), and the mean of the items was between (3.55 – 4.09), and standard deviation between (0.81 -0.91). The highest mean was related to item no. (4) "Students participate in planting seedlings", with a mean of (4.09) and a standard deviation of (0.86). On the other hand, paragraph no. (7) "The school provides awareness sessions for teachers on implementing activities related to protecting school gardens" ranked last with a mean of (3.55- total score of 5) and standard deviation of (0.84).
- To test the relationship between the Green Space Program and enhancing environmental conservation in the public schools in the southern Palestinian governorates, the correlation coefficient was calculated between the independent variable (Green Space Program) and the dependent variables (enhancing environmental conservation). The results are listed in table (5.8). As shown, the significance value is less than 0.05 (P-value < 0.05), thus the relationship is statistically significant at $\alpha \leq 0.05$, (correlation coefficient is 0.802). Therefore, it can be said that the relationship between the Green Space Program and enhancing environmental conservation is strong. This means the Green Space Program contributes to enhancing environmental conservation in the governmental schools in the southern Palestinian governorates.

Table 5.8: Correlation coefficient between Green space program and Enhancing environmental conservation

	Statistic	Enhancing environmental conservation
Green space program	<i>r</i>	*0.802
	<i>P</i> -value	0.000
	<i>N</i>	105

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

- There is shared agreement among the respondent on the contribution of Green Space Program to enhancing the environmental conservation; RII for all related items is (76.6%). The researcher explained this as agriculture is one of the sectors that the MoE is paying attention to; especially for the vocational and technical educational programs. The program's activities' purpose is to increase the vegetation cover and landscapes, improve the aesthetic view of the school, and enhance the student's involvement which would contribute to enhancing environmental conservation to some extent.
- The MoE confirmed that afforestation in schools is implemented during the year in coordination with various parties including Ministry of Agriculture, NGOs, INGOs and other local ministries to contribute to the implementation of the education/agriculture cross-sectoral strategy as a part of the Sustainable Development plan 2030. The study of Sheta et al., (2019) reported that educational institutions have a vital role in activating educational programs which aimed at enhancing students' environmental awareness of the importance of afforestation and engagement in practical environmental projects. Al Farra (2013) also implied the role of school administrations' programs in enhancing secondary school students' awareness of environmental education in Gaza governorates. This result agrees with both the results' analysis of the interviews and focus groups, indicating students' participation in afforestation activities maintain their environmental responsibility.
- Paragraph no. (3) "Students participate in planting seedlings", RII (81.7%), ranked the highest; presenting a positive agreement by respondents, which reflects the aim of the Green Spaces Program to make the students participate in planting seedlings and raise their awareness of the importance of vegetation cover and its effects on the environment.

This conclusion is compatible with the study of Andersson et al. (2013) which revealed that students became more concerned about environmental issues after participating in educational/environmental programs. Also, focus groups analysis showed that students participate in planting seedlings which enhance their environmental awareness.

- Paragraph (1) and (4) got RII of (80.8%), (80.2%) respectively. Regarding paragraph (1) stating "The school is interested in putting up signboards inside the school urging students to take care of the trees. As confirmed by Dr. Abdelkarim Al Majdalawi on 24.08.2022, that signboards are usually prepared and hanged in school regardless of the Green Space Program as it is considered one of the MoE policy tools for enhancing students' environmental awareness. Signboards are used to better clarify the concept of environmental conservation and improve students' awareness of environmental conservation. Also, signboards are effective tools used in schools to promote environmental awareness by providing information and clues encouraging students to adopt pro-environmental behavior toward environmental resources, and to follow instructions of what should be and should not be done inside schools regarding environmental matters and educating students about the importance of vegetation cover for environmental conservation.
- Paragraph no. (4) "Program contributes to educating students about the importance of vegetation cover for environmental conservation", was agreed on by the respondents. This program is considered as a main part of the extracurricular activities executed, in parallel with the scholastic curricula, where the students are educated about the importance of vegetation cover through engaging them in planting the seedlings. Based on an interview with Mr. Mazen Al Batniji on 04.10.2020, many parties worked with the MoE on facilitating schools' plantation due to the lack of funds available at the MoE for such activities.

Analysis of paragraphs related to (dependent variables) enhancing environmental conservation

This section consists of 14 items related to enhancing environmental conservation. The mean, relative importance index (RII) and standard deviation were calculated for item paragraph, and the results are shown in table (5.9).

**Table 5.9: Mean, SD, RII, Test value- and P-value
(Enhancing environmental conservation)**

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value	Sig.	Rank
1.	The school use signboards inside the school to rationalize water use	4.00	0.82	80.0%	12.49	0.000		3
2.	The school use signboards inside the school to rationalize energy use	3.68	0.93	73.5%	7.49	0.000		8
3.	Students rationalize water consumption in schools	3.86	0.87	77.1%	10.09	0.000		5
4.	Students rationalize energy consumption in schools	3.67	0.91	73.4%	7.58	0.000		9
5.	The school considers providing containers for sorting waste (plastic - paper..)	3.30	1.26	65.9%	2.41	0.018		13
6.	Students participate in school initiatives to implement solid waste management strategies through reduction, reuse, and recycling.	3.31	1.08	66.2%	2.88	0.005		12
7.	Students contribute to reducing the amount of waste produced daily	3.23	1.03	64.6%	2.27	0.025		14
8.	Students practically participate in afforestation in and around schools	3.80	0.83	76.0%	9.94	0.000		6
9.	Students behave correctly towards trees planted in school yards	3.70	0.89	74.1%	8.14	0.000		7
10.	The students regularly take care of the planted trees	3.56	0.89	71.2%	6.49	0.000		10
11.	The school administration participates in fixing damaged water taps or sewage leaks.	4.38	0.75	87.6%	18.83	0.000		1
12.	Teachers are interested in reporting any environmentally inappropriate behavior by students (take down trees - wasting drinking water and bathrooms).	4.14	0.75	82.9%	15.57	0.000		2

No.	Item	Mean	Std. Dev	RII (%)	Test value (T)	P value	Sig.	Rank
13.	The school participate in projects related to water desalination inside schools	3.45	1.11	69.0%	4.14	0.000		11
14.	Students inform school's administration when observing tree-damaging behavior by one or a group of students	3.97	0.83	79.4%	12.06	0.000		4
	All items	3.72	0.65	74.4%	11.27	0.000		

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

The results mentioned in table (5.9) refer to the followings:

- Table (5.9) shows that there is an agreement by the respondents on the paragraphs related to enhancing environmental conservation in the governmental schools in the Southern Palestinian governorates. The total mean of all paragraphs was (3.72 - total score of 5), standard deviation (0.65), and the mean of the items ranged between (3.30-4.38), and standard deviation between (0.75-1.26). The highest mean was for paragraph no. (11) which shows that the school administration participates in fixing damaged water taps or sewage leaks, with a mean of (4.38) and a standard deviation of (0.75). It is followed in rank by paragraph no. (12), which shows that teachers are interested in reporting any environmentally inappropriate behavior by students (taking down trees - wasting drinking water and destroying bathrooms), with a mean of (4.14- total score of 5) and standard deviation of (0.75). Finally, paragraph no. (7) ranked last which shows that students contribute to reducing the amount of waste produced daily, with a mean of (3.23- total score of 5) and a standard deviation of (1.03).
- The result above refers to the agreement among respondents to the implementation of environmental conservation activities executed by both teachers and students, with an overall RII of 74.4%. Even though there are some procedures & programs implemented by MoE, the researcher believes that those procedures have not been implemented in a proper way, as it is still obvious the unconscious behavior of students and their families in the streets and public places presented in pollution resulted from irrational use of

natural resources, the waste accumulation, and random burning of waste where MoE and other concerned parties still not taking any serious intervention regarding conservation landscapes, sorting, reusing, and recycling waste at schools. Thus, the percentage of RII 74.4% would be real and may be higher if there is a real implementation of environmental law and effective partnerships to ensure better implementation of activities related to environmental conservation in schools and community. This result agrees with study of (Abu Taha, 2018) that revealed that recycling activities protect Palestinian lands from toxic substances and contributing to reducing waste in landfills and conserving agricultural lands. Also, the study of (Khalifa and Nouredine, 2018) confirmed that Environmental protection requires mobilizing the efforts of all environmental actors. Focus groups also revealed that they participate from time to time in some activities related to waste management, but they are not regular or systematic.

- Paragraph no. (11) "School administration participates in fixing damaged water taps or sewage leaks, " has got the highest rank of agreement among respondents, with RII of (87.6%). This result reflects school administrations' response to solving technical problems occurring in schools, and this work is under the supervision of the school administration, which usually reports such incidents to the heads of School Health departments based on the MoE's instructions. Based on an interview with Mr. Abdullah Nassar, School Health department's Head in East Gaza, he confirmed that the MoE allocates an annual budget to school administration to solve the technical problems related to school health. This result agrees with the study of Abu Sakor (2012) which revealed that the instructions of Education Directorate regarding school environment and environmental awareness contribute to ensuring a safe and clean environment inside the school.
- Paragraph no. (12) "Teachers are interested in reporting any environmentally inappropriate behavior by students (taking down trees - wasting drinking water and destroying bathrooms) ranked second, with RII of (82.9%). The researcher explained that it is part of teachers' role to devote some efforts outside the classroom to ensure an interactive learning environment. This relates to goal no. (2) of the Strategic goals of the educational sector: "Develop a student-centered teaching and learning environment and methods " (MoE, 2022): (15.11.2022), which is implemented through expansion of

extracurricular activities as a part of a practical side for the scholastic curricula. This also indicates the importance of teachers' commitment to protecting the environmental resources. This result agrees with the study of (Yousef, and Ibrahim, 2018), which shed light on the important role of teachers in promoting values of protecting the community and the effectiveness of extracurricular activities inside secondary schools.

- In addition to the above, (8) paragraph no. "The school uses signboards inside the school to rationalize water use", ranked third, with RII of (80.0%). Signboards are a very essential investment for any school as it influences the perception and inspiration of students especially in a place where there are hundreds of students studying. It is also a very effective communication tool used for sharing information and motivating students to rationalize water utilization. Signboards are considered as policy tools encouraged by the MoE for their active work in promoting environmental practices at schools.

The second main question:

Are there differences in the respondents' opinions regarding the role of the Ministry of Education's programs on enhancing the environmental conservation due to demographic variables?

To answer the second main question, the independent sample T-test was used to test the differences related to the variables (gender and job), and one way ANOVA to test the differences related to the variables (directorate, age, academic qualifications, job title, and school type) as shown in table 5.10:

The results mentioned in table (5.10) refer to the following:

Table 5.10: Differences in the respondents' opinions due to Demographic variables

Demographic variables		Test statistic	Sig	Result
Gender	Male	T=0.992	0.323	No differences
	Female			
Job	School Head	T=0.976	0.331	No differences
	Teacher			
	Bachelor	F=0.607	0.547	

Demographic variables		Test statistic	Sig	Result
Academic Qualifications	Higher studies			No differences
	Others			
Age	22-30	F=0.637	0.593	No differences
	31-38			
	39-44			
	More than 45 years			
Job Title	School Head	F=0.708	0.495	No differences
	Environmental Club Teacher			
	School Health Coordinator			
School Type	Girls	F=1.202	0.305	No differences
	Boys			
	Co-Education			
Directorate	Gaza North	F=1.196	0.315	No differences
	Gaza East			
	Gaza West			
	Khan Younis			
	Khan Younis East			
	Middle			
	Rafah			

Source: prepared by the researcher based on the outputs of the applied results of the SPSS Program.

The results mentioned in table (5.10) refer to the followings:

- According to the results of the test as shown in table (5.10), the P-value is not statistically significant ($P\text{-value} > 0.05$). Thus, there are no statistically significant differences due to the demographic variable at the level of (0.05) between the means of the respondents' views about the role of the Ministry of Education's programs on enhancing environmental conservation.
- There are no statistically significant differences in respondents' answers of the role of the Ministry of Education in enhancing environmental conservation with relation to gender, job, academic qualifications, age, job title, school type and directorates. The main reason behind this result is that respondents live in the same environment in the southern Palestinian governorates, all work at public schools under the supervision of

the MoE where the educational programs are implemented and received the same guidance and instructions from the MoE.

- Regarding gender, both male and female teachers/schools' heads are involved in the implementation of educational programs, having an appropriate understanding of the role of school in the environmental education's programs.
- These results agree with Al Farra (2013) study which confirmed that there are no statistically significant differences in sample responses to the role of school administration in enhancing the awareness of environmental education for secondary school students in Gaza governorates due to gender, service years and educational area. Also, Abu Sakor (2012) study agreed with the above results that there are no statistically significant differences in the response of school heads regarding the role of school administration in enhancing environmental awareness due to gender or academic qualifications in Hebron, Palestine.
- Results of the focus groups and interviews' analysis confirmed that teachers at schools for males and females are involved in environmental awareness activities and provide continuous guidance to students regarding participating in school morning programs, environmental competitions, and afforestation, etc.
- On the other hand, Al Farra (2013) study showed different results stating statistically significant differences due to teachers' academic qualifications variable.

The Third main question:

What are the obstacles of the implementation of educational/environmental programs in public schools in the Southern Palestinian governorates?

Few training sessions provided to the involved teachers

The first obstacle noticed by the researcher through analyzing the results of the statistical analysis is presented in paragraph no. (6) mentioned in the Environmentally Sustainable Schools Program: "Teachers receive training to implement the environmental activities of the Environmentally Sustainable Schools Program". It ranked last with RII of (64%), in which respondents presented the lowest approval degree.

The researcher explained that this matter was not given enough attention and priority by the Ministry of Education due to limited sources of funding, as there is no specified budget for the implementation of environmental programs/training sessions. The only source of funding is external aid provided by international or private institutions or local community organizations.

Even at the event of training sessions, the teachers are not motivated to participate as there is no overtime payment for teachers involved in the work. Moreover, teachers cannot be committed to receiving training during working hours as there is no full-time teacher available to work at the school health department or environmental club. It is worth mentioning that teachers of the environmental club and the school health committee are originally teachers bounded by a specific class schedule and shifts.

On 04.10.2022, Mr. Mazen Al Batniji confirmed that there are few training sessions (capacity building sessions) held in schools concentrating on making program goals and requirements, but these sessions cannot be done regularly as school health and environmental clubs' teachers are fully occupied with their duties as teachers. On 12.10.2022, this was also confirmed by Mrs. Sabah Abu Shareakh (Head of the Health Education and Health Services Division at Gaza North educational directorate). She stated that there is a lack of training sessions provided to school health coordinators, environmental clubs' teachers and schools' headmasters which affects their initiative, understanding and participation.

These results agreed with the study of Karimo (2018), which stated that there is a lack of motivation by teachers due to lack of resources, professional training, large class sizes, and workload; in addition to the lack of governmental prioritization of environmental matters. The lack of training on environmental issues may lead to weaknesses in the implementation of the environmental theoretical information which is connected to defects in schools' indoctrination mechanisms; this conclusion agrees with the study of Bin Hamza (2021).

Negligence of the implementation of environmental laws regarding waste management programs

The second obstacle noticed through the results of the statistical analysis and focus groups analysis is that students' participation in recycling and reusing waste is low as presented in

paragraph (13) in the theme of Sustainable Environmental Schools' Program, with a mean of (3.41), standard deviation of (1.08), and RII of (68.2%); hence ranking last. This obstacle was explicit in respondents' replies to the items of environmental conservation, as items (5), (6), and (7) ranked the lowest. Item (5) "The school considers providing containers for sorting waste (plastic, paper...etc.)" received an RII of (65.9%), item (6) "Students participate in school initiatives to implement solid waste management strategies through reduction, reuse, and recycling" RII of (66.2%), and item (7) "Students contribute to reducing the amount of waste produced daily" RII of (64.6%).

These results could be attributed to the absence of an environmental law and law enforcement stakeholders; ignoring the Palestinian Law stating "Balance and clean environment is a human right and conserving the Palestinian environment for the current and future generations is a national responsibility". Serious interventions for managing waste are neglected inside the governmental schools which has been confirmed by both female and male students' focus groups, who only participated in minor initiatives for paper and plastic reuse.

On 08.09.2022, the interview with Mr. Abdullah Nassar, School Health Department's Head at Gaza West, revealed that waste management at schools generates some financial profit, and this requires approval from the Ministry of Education. It has to be aware of all taken procedures and measures in this regard, as the usual procedure for managing waste inside school is to be collected by municipalities without sorting, recycling, or reusing or any other intervention from school. In addition, the prevailing culture and lack of community awareness of the importance of managing waste inhibits the process of recycling and reusing waste inside schools.

On 04.10.2022, Mr. Mazen Al Batniji confirmed that the lack of funds allocated for such activities is a main reason for the low participation as the school cannot afford purchasing separate baskets for each waste component. Another reason is the lack of qualified infrastructure in schools for managing waste and approximately all the waste generated is organic and paper; plastic waste is quite rare. These results agree with Kattoua et al. (2019) Al-Khateeb et al. (2017), and Stofejova (2020) which revealed that the lack of knowledge about waste segregation processes is one of recycling barriers. Also, the study of Kattoua et al. (2019) confirmed that financial incentives are also a major motive for individuals' active participation in recycling.

Lack of environmental awareness sessions offered for parents and lack of community awareness.

Through the results of the statistical analysis, it was noticed that item no. (9) "The school conducts environmental awareness sessions for parents" in the field of Sustainable Environmental Schools' Program ranked 11th with a mean of (3.59), standard deviation of (0.95), and RII of (71.8%). The researcher attributed this result to the lack of funds available for conducting such sessions for parents, as most of sessions held are through external projects financed by the INGOs or NGOs to pay for the trainers, transportation, refreshments, and printed documents. It appears that parents are not fully aware of the importance of environmental education and awareness.

On 04.10.2022, Mr. Al Batniji confirmed that even when parents are invited to attend relevant sessions, there is a lack of response and interest by them to attend the environmental awareness sessions. Stofejova (2020) study agreed that lack of environmental awareness is an obstacle for households' willingness to engage in pro-environmental activities. Also, this result agreed with the study of Argo (2016) which stated that providing information to residents allows them to modify their behavior toward the environmental resources.

No budget allocated to implement the educational programs targeting the concept of environmental conservation, which presented in schools' inability to provide calendars of local, Arab, and international environmental events at schools.

The third obstacle noticed by the researcher through the results of the statistical analysis presented in paragraph no. 1 in the second program of Reviving the Environmental Occasion "The school provides a calendar of local, Arab, and international environmental events", ranked lowest with an RRI of (64%) and the average response was "agree to some extent". The researcher attributed this result to the lack of financial funds allocated to the school health department and to the educational programs targeting the environment. This was confirmed by the interviews conducted with senior level employees at the Ministry of Health. It is worth mentioning that there is a financial quota provided for each school, but the main concern is still

for the educational process, school construction, and maintenance. Both Abdel Ghani (2013) and Alrowais (2017) confirm that the lack of financial support negatively affects the educational process and the environmental development.

Lack of effective partnerships for the implementation of educational programs.

The fourth obstacle noticed by the researcher through the results of the statistical analysis presented in paragraph (5) and (6) in the second program of reviving the environmental occasions, "There are partnerships with related parties to revive environmental occasions", "Partnership with other institutions contributes to the effective implementation of program's activities". The respondents' replies varies and the RII for both paragraphs was quite similar (68.8%) and 68.6% receptively, which indicates a degree of (Agree to some extent).

The fourth obstacle was noticed by the researcher through the results of the statistical analysis presented in items (5) and (6) in the second Program of Reviving the Environmental Occasions "There are partnerships with related parties to revive environmental occasions","and "partnership with other institutions contributes to the effective implementation of program's activities". The respondents' replies varied and the RII for both items was quite similar (68.8%) and (68.6%), receptively, which indicates a degree of (agree to some extent). The researcher attributed this result to the fact that the partnership level between the MoE and other concerned parties has been affected recently by the political situation and the overall economic situation which adversely diminished the financial and technical support for the educational programs as they are primary partners in the implementation and evaluation. On 24.08.2022, the structured interview with Dr. Abed Al Karim Al Majdalawi revealed that the critical political situation led to hindering US institutions' support for educational programs, which was noticeable in the recent years. Without effective and deliberate partnership in the education sector, it is difficult to enhance the quality of the educational services. Partnerships are critical and crucial to the achievement of SDGs as partnerships encompass various roles in funding, building infrastructure, formulating policies, evaluation, and implementation. This result agrees with the study of Alrowais (2017) which revealed that limited partnerships adversely affect the financing of educational projects, where the lack of economic and financial planning and support inhibits the development of educational resources.

In addition, Aldosari (2016) confirmed that enhancing environmental education requires partnership with various related concerned parties. The study of Abdel Ghani (2013) and Hamouda et al. (2020) agreed with the current study's results' explanations that partnership between various actors clearly contributes to achieving a balance between the requirements of development and the requirements of environmental conservation, making the community more capable to participate in development.

In addition, (Aldosari, 2016) confirmed that enhancing environmental education constitutes partnership with various related concerned parties. Also, the study of (Abdel Ghani, 2013) and (Hamouda et al., 2020) agreed with the current study's results' explanations that partnership between various actors clearly contribute to achieving a balance between the requirements of development and the requirements of environmental conservation, making the community more capable to participate in development.

Lack of students' environmental knowledge, high density inside schools, limited spaces of schools' yards.

It was noticed through the results of the statistical analysis presented in items (8) and (9) in the third program of Green Spaces "The program contributes to improving students' understanding and attitudes to the negative repercussions resulting from neglecting trees" and "The program enhances students' knowledge of climate change and biodiversity "ranked lowest with quite similar RII for both (72.4%) and (71.8%), receptively. The researcher attributed this to the limited involvement of teachers (school health and environmental club teachers) who are too busy to handle their classes within a predetermined schedule prepared by the school administration. Therefore, there would not be much time to educate students about the program's relevant information.

Not having environmental classes held regularly would negatively affect students' environmental awareness and their participation in environmental activities. Also, teachers' specialization is not always related to the topic of environment; meaning, it is not necessarily that science or geography teachers are fully educated and aware of environmental information required to be delivered to students.

On 24.08.2022, the interview with Dr. Abdulkarim Al Majdalwi revealed that high density inside schools hinders the implementation of plantation programs and activities, as extracurricular activities are essential to enhancing students' environmental awareness. Limited spaces is another obstacle, where the space required to be provided for each student is 2 square meters. Based on another interview with Mr. Mazen Al Batniji on 04.10.2022, the priority of the MoE is the educational process, not the educational programs targeting environmental conservation, which affects schools' interest in specifying limited numbers of environmental educational classes. The MoE's inability to allocate financial allowances to participants and teachers affects teachers' motivation and initiative in participating in educational/environmental programs. This result agrees with the focus groups analysis results as the researcher noticed that students lack some environmental concepts.

This result agrees with Kimaro study (2018), which revealed that lack of motivation by teachers was due to the to lack of resources, professional training, large class sizes, and workload, in addition to marginalizing environmental education in schools due to the lack of governmental prioritization of environmental matters. Also, Yousef, Ibrahim (2018) explained the important role of teachers in promoting essential values for protecting the community.

5.4 Interview analysis

1. What are the educational policy tools considered to enhance the implementation of educational programs related to environmental conservation at the governmental schools in the Southern Palestinian Governorates?

There are various tools used such as bulletins, instructions, and correspondences, which are usually circulated to all school headmasters at the beginning of each school year to describe the necessary interventions in-line with the listed policies. The MoE uses educational tools to promote relevant policies through field visits, training courses, publications, school morning programs, websites, signboards, school curricula, events, activities, posters, and murals that enhance students' behavior and understanding towards the surrounding environment.

The MoE used to send regular correspondences to school administration urging them to use the school morning program for raising students' environmental awareness and celebrating

environmental occasions as it is considered as a tool used daily targeting all the students. There is an assigned responsible teacher for preparing school morning programs.

Question 1: Results Analysis:

Based on the answers taken from specialists and experts, the researcher concluded that there is a consensus among the interviewees that the MoE used various tools for enforcing educational policy related to enhancing environmental conservation. The MoE focuses on the school morning program as a daily platform that is effective in disseminating environmental concepts to encourage students to conserve their environment.

2. To what extent the partnership is important for the implementation of educational programs targeting the environmental conservation?

- There is an agreement by respondents that partnerships are very essential for effective planning, implementation, and evaluation of the educational programs taking place in governmental schools.
- There is a solid cooperation between Environmental Quality Authority and the Ministry of Education for enhancing the environmental awareness through focusing on environmental education programs where the general Administration of School Health in the MoE is considered as a focal point and a main partner in implementing the awareness plans and activities at schools.
- There is a signed agreement between the MoE and WQEA, which started in 2010, to enhance the environmental dimension at schools through the implementation of programs, celebration of environmental occasions, formation of joint committees, provision of specialists in the field of environmental awareness, and provision of seedlings to schools.
- The Ministry of Agriculture plays an important role in providing seedlings to the schools.
- The MoH takes part in checking water purification devices in schools by examining water samples and following up with its cleanliness.
- Municipalities contribute to waste collection from schools, implementation of cleaning campaigns, provision of seedlings, implementation of awareness sessions, maintenance

of sewage networks, address of health problems and implementation of environmental educational competitions.

- The local community/parents also have an active role in providing seedlings to schools, providing schools with health educators, and decorating the school environment with plants and drawings.
- There is cooperation between the Ministry of Education and local and international organizations which financially fund educational projects taking place inside schools. First: governmental agencies; Ministry of Health - Water and Environmental Quality Authority - Ministry of Local Government, Ministry of Agriculture. Second: Non-Governmental entities: the Islamic Relief - Oxfam - Palestinian Environment Society - My Environment Association - Action Against Hunger - Agricultural Aid-Oxfam. Unfortunately, those partnerships are temporary and, in some cases, do not leave an indelible mark on students' environmental behavior.

Question 2: Results Analysis:

Based on the answers taken from the specialists and experts, it was revealed that the MoE has multiple partnerships with governmental and non-governmental entities, which are like-minded partners, sharing quite similar interests in conducting educational programs, through financial and technical support. Those entities have contributed through their professional staff, advisors, expertise, and pre and post evaluation to enhance environmental conservation through the educational programs. However, those partnerships are short and temporary, that negatively influencing the sustainability of these programs. Meaning, they are not durable hence do not effectively contribute to the environmental dimension.

3. How does the MoE identify the environmental needs/problems inside schools?

At the beginning of each scholastic year, surveys and field visits are conducted inside schools to identify existing environmental problems. The plans of the ministries and concerned authorities are designed in cooperation with schools' administrations and students' parents. At the end of the scholastic year, evaluation reports are made by schools and reported to the MoE based on observation, fields' visits, and fact-based interventions.

Question 3: results' analysis:

Based on the answers taken from the specialists and experts, it was revealed that the MoE depends on schools' administration efforts and school health department to conduct field visits to identify the environmental challenges facing the school's environment through observation and reporting. However, there are variances in the interests and efforts exerted by schools in the seven educational directorates, as they take part in identifying and following up with the environmental problems. The researcher explained this because of the lack of unified monitoring and evaluation system, where MoE can understand the schools' work progress and identify the environmental problems in more proper way. This may also because MoE may not highly considering the environmental concerns as its priority, where teachers and schools' administration are partially aware and motivated because of the lack of environmental awareness sessions and instructions received from MOE. This also may indicate lack of MoE's financial fund, guidance and supervision for the educational programs targeting the environment.

4. How does the MoE evaluate educational programs applied in schools?

The assessment of educational programs is a necessary action to provide implications about students' environmental awareness and environmental activities implemented in schools. This can be done through observation and notetaking during field visits executed by the heads of the school health department since some of them prepare weekly, monthly, and sometimes emergency reports based on observations. MoE found that those reports as communicative tools providing indications about each school achievement and shed the light on the current technical problems. Following are types of reports prepared in some directorates:

- Field Monitoring reports (school environment): filled twice during the scholastic semester. (Environmental clubs, drinking water, sanitation nets, cleanliness of stairs, yards, corridors, and overall aesthetics.
- Monthly reports filled by the school health coordinator and environmental club teacher including health checkups, vaccinations, water status, and awareness sessions.

- Implementation reports prepared by school headmasters include evaluating programs/projects implements, pros and cons, and feedback.
- Field Visit Report: filled by the department of health at schools that conducts regular field visits to school for monitoring, evaluating, and reporting concerns over water, water sanitation, seedling, trees, drinking water and others.

Question 4: Results Analysis:

Based on the answers taken from specialists and experts, it seems that reports are the main tools used for building clear feedback about educational programs' achievements through documenting the activities of school health committee and environmental club, environmental challenges, and problems occurred in health facilities and schools' yards, in addition to raising all the concerns to the MoE. However, the researcher notices that there is no unified mechanism for assessment that enable all concerned parties to view and monitor the progress. Also researcher found that not all the school health departments are similarly active in preparing required assessments and reports, which can be explained by lack of motivation and lack of MoE supervision and follow-up, in addition to lack of interest by some school health departments in conducting periodic review and evaluation, and it may related to the schools' need to receive more guidance from the MoE and environmental awareness training sessions.

5. What are the main funding sources that support educational programs that target the environmental dimension in schools?

There is no funding allocated by the MoE for implementing the educational/environmental programs in governmental schools considering the financial hardship that the government is experiencing. Funding is most likely received from external sources through donations from NGOs and INGOs such as the World Food Organization, UNICEF, and the Union of Agricultural Work Committees.

Also, school administration may interfere in solving relevant problems using the assigned school budget, otherwise they contact the health school department in each educational directorate.

Question 5: Results Analysis:

Based on the answers taken from the specialists and experts, it was revealed that the critical financial situation of the MoE is due to the absence of allocation of funds. The only source of funding for implementing the educational/environmental programs is the external funds from concerned parties. This can be explained that environmental dimension programs are not taken seriously at schools. The MoE's main priority is regarding issues directly related to the educational process. Also, the absence of enacting environmental laws by the Palestinian government leads to ignoring taking serious steps toward enhancing environmental conservation in schools and community.

6. What are the main obstacles/difficulties facing the implementation of educational programs in schools?

- Lack of the allocated budget required for implementing and facilitating the activities of school health departments and environmental clubs' activities.
- Shortage in the number of teachers working at the school health committee and environmental clubs, where the environmental club teacher is working at a full-time basis, (6 classes per day), and the school health coordinators works (3-4 classes per day).
- Teachers' reluctance to join the environmental club because of lack of privileges or incentives.
- Lack of interest and support by Water and Environmental Quality Authority to engage in such programs especially after the integration between the Ministry of Water and Environmental Quality Authority.
- Lack of sustainability in projects implemented inside the schools.
- Lack of coordination and cooperation between school administrations, at the two-shift school.
- The poverty rate and the students' standard of living influence their involvement in many environmental activities as they cannot afford the expenses of participating in environmental trips or other environmental activities as these activities are not financially supported or funded by the Ministry of Education or other concerned parties.

Local Community Obstacles

- Lack of environmental awareness in local communities which does not support the implementation of such programs.
- Vandalism and theft of drinking water taps and seedlings.
- Aggressive behavior of some students towards the trees, schools' yards, and schools' building.

Question 6: Results Analysis:

Based on the answers taken from specialists and experts, it was revealed that the main obstacles confronting the implementation of educational programs targeting the environmental dimensions are relating to financial and social constraints and not considering environment conservation as a priority in a society suffering from poverty and food insecurity. The researcher explained this with reference to the pressing political situation affecting all economic sectors and preventing funds from local and external parties and, therefore, limiting partnerships.

5.5 Focus Groups results:

The results of analyzing the answers of female students' focus group revealed that students understand the importance of environmental conservation and are partially aware of the possible threats confronting the environment. However, there is lack to some extent of the theoretical framework regarding the environmental general information, definitions (biodiversity- climate change- reusing-recycling waste). On the other hand, the analysis results of male students focus group were quite different. There is a noticeable deficiency in environmental knowledge about many environmental concepts, demonstrating only a general understanding of the definition of the environment and other relevant terms. Nevertheless, students from the two focus groups got their environmental knowledge from the signboards, booklets, school morning program, instructions, the environmental occasions activities, bulletins, and environmental competitions.

Regarding students' environmental attitude, female students have a clear positive attitude. They promote environmental values asserting that everyone in the society is responsible for conserving the environment, showing positive attitude toward rational utilization of water and electricity, encouraging others to be responsible toward the environment, and notifying school administration when observing environmentally unfriendly practices by other students.

Similarly, male students show willingness and positive environmental attitude at school, their houses, and public places. Some activities remarkably affect male students' awareness including environmental competitions, school morning program, afforestation, awareness sessions, and reusing activities.

In terms of students' environmental participation, there is a variety of environmental activities implemented in the female students' school, where teachers and students participate and cooperate in the implementation of environmental activities such as school morning programs, celebration of environmental occasions, afforestation, following up with the cleanliness of toilets, environmental competitions, and raising awareness among other students. Female students confirmed that they are remarkably affected by practical environmental activities. On the other hand, it is evident that activities implemented in male students' school are limited and not regular in comparison to the other focus group. These include afforestation, awareness sessions, celebration of environmental occasions, environmental competitions, and morning programs. It was clearly noticed that activities related to waste reusing at both focus group are limited and only occasionally implemented.

Chapter: 6

Conclusion and recommendations:

6.1 Conclusion:

- The presented work revealed the significance of educational programs in raising environmental awareness and promoting environmental conservation in society, and the

crucial role of the MoE, the local community and actors in supporting environmental conservation programs and initiatives.

- Respondents expressed their endorsement of the implementation of environmental conservation activities in schools (RII 74.4%). However, more work should be done to sustain this trend as it is still evident the unconscious behavior of students and their families in the streets and public places as there are some challenges that are considered priorities for people hindering efforts exerted to conserve the environment such as lack of community awareness and cooperation, poverty, unemployment, and food insecurity.
- Despite the contribution of the three programs (Environmentally Sustainable Schools, Environmental Occasions' Revival, and Green Spaces) to environmental conservation, the questionnaire results, interviews and focus groups revealed several obstacles hindering the implementation of the programs at the fifteen public schools examined in the research. Among the obstacles are the lack of allocated budget, lack of effective partnerships, negligence of the implementation of environmental laws, lack of environmental awareness sessions offered for parents and teachers, lack of community awareness, crowded classes at schools, limited yard spaces at schools, and lack of students' environmental knowledge.
- The study showed the importance of partnerships and collaborative work between the two ministries (the MoE and WEQA), which was reflected in their agreement to work on implementing the three educational programs targeting the enhancement of environmental conservation.
- Students lack the necessary environmental knowledge about environmental concepts, which means more work should be done to foster environmental education.
- Respondents showed agreement on the contribution of the Environmentally Sustainable Schools program to enhancing environmental conservation (RII 75.4%). The relationship between environmentally sustainable school programs and enhancement of environmental conservation is statistically significant at $\alpha \leq 0.05$, with correlation coefficient of (0.799). This emphasized the variety of activities implemented at schools that focused on raising students' environmental awareness and enhancing their engagement in multiple environmental initiatives. However, there is a noticeable

shortcoming in the program in terms of providing training courses for teachers, implementing waste management initiatives, and conducting extracurricular activities.

- Respondents showed agreement on the contribution of Environmental Occasions' Revival Program to enhancing environmental conservation, (RII 76%). The relationship between Environmental Occasions' Revival Program and enhancement of environmental conservation is statistically significant at $\alpha \leq 0.05$, with correlation coefficient of (0.839); ranking the highest. This indicated the extent of this program's contribution to promoting and activating environmental concepts, where the MoE exerted some efforts as a part of its operational plan to involve schools with other parties in celebrating those occasions.
- Respondents showed agreement on the contribution of Green Spaces program to enhancing environmental conservation, (RII 76.6%). The relationship between Green Spaces Program and the enhancement of environmental conservation is statistically significant at $\alpha \leq 0.05$, with correlation coefficient of (0.802). This reflected the MoE's interest in agriculture and afforestation as part of the vocational and technical educational programs, conducted in parallel with the Education/agriculture cross-sectoral strategy.
- There are no statistically significant differences in the respondents' replies about the role of the Ministry of Education's programs in enhancing environmental conservation due to the demographic variables at the level of (0.05).
- Environmental awareness programs have a stronger effect on female students than on male students.
- Even though there is agreement by respondents on the measures and procedures taken in schools for promoting environmental awareness, this does not necessarily mean that environmental conservation is achieved.

6.2 Recommendations:

- The MoE may give more priority to environmental awareness programs and environmental conservation initiatives and activities.

- The MoE may enhance students' environmental knowledge and encourage environmentally friendly behaviors in the schools and community. It is crucial to consider issuing an environmental guide for students and incorporating environmental education into the curricula of all grades at all Palestinian schools.
- The MoE may develop a unified system for monitoring and evaluating the school's educational program, where all employees working at the MoE, educational directorates, schools, and WEQA can view the implemented activities.
- The MoE may implement training programs for teachers to help them master the implementation of extracurricular activities related to educational/environmental programs; therefore, a specific amount of funds should be allocated to conduct awareness sessions for the involved teachers.
- The MoE may activate environmental media through broadcasting dedicated environmental seminars on radio and television.
- The MoE may introduce children to practical learning situations and offer more extracurricular activities regarding the environmental problems that need to be addressed inside and outside schools.
- The MoE may enhance students' engagement and involvement in the environmental activities in schools, so it would be helpful to use smart advanced educational tools and devices displaying environmental concepts to simulate all the senses of the students.
- The MoE and local community, as a part of community engagement, need to consider allocating a specific budget for implementing the educational programs targeting environmental conservation, which should be applied at all the public schools not only the 50 targeted schools.
- The MoE may coordinate with the civil society and conduct environmental awareness sessions for the local community and parents to promote the concepts of environmental conservation.
- To enhance students' awareness toward waste management, the MoE may coordinate with WEQA to activate the waste management-related programs to activate students' participation in waste sorting, reusing, and recycling,
- The MoE may enhance partnerships with media institutions, NGOs, and the private sector to promote collective efforts toward supporting the implementation of these

programs through conducting regular meetings to build up a plan explaining each partner's role in enhancing the environmental dimensions at schools.

- The MoE may recruit a full-time environmental educator in each school to handle the tasks related to environmental education regarding the implementation of environmental awareness programs, introducing sessions and environmental activities, supervising students' environmental behaviors, and teaching environment-related topics in the curricula.
- The MoE may recruit more staff to work at the schools' Health Departments at the seven educational directorates.
- The MoE may utilize the green spaces in the schools to teach students how to properly dispose organic waste and use compost in fertilizing, and encourage rooftop agriculture for schools with limited spaces.
- Despite all the efforts made and the tools used to raise the students' awareness of the importance of the environment and conservation, the results are not satisfactory, and therefore, these programs and tools must be re-evaluated.
- This study focuses on the direct effects of the education-environmental programs on the direct actors (students and teachers), which open the road for further investigation to study the impact of those programs on the indirect actors. (families and society).

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The Appendixes:

Appendix 1: Interviewees' Names

Table (1): Interview Table:

#	Name	Entity	Position
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1.	Abd Al Karim Al Majdalawi	Ministry of Education	General Manager for Guidance and School Health
2.	Mazen Al Batnji	Ministry of Education	Head School Health and Water Department
3.	Abdullah Nassar	Gaza East Directorate	Head of School Health Department in Gaza East Directorate
4.	Mr. Maysara Abu Okal	North Gaza Directorate	Head of School Health Department in North Gaza Directorate
5.	Mr. Majed Al Qedra	KhanYounis Directorate	Head of School Health Department in Khan Younis Directorate
6.	Mr. Khaled Abu Ghali	Water and Environment Quality Authority	Head Environmental Awareness Department
7.	Ms. Israa Jaber	Water and Environment Quality Authority	Environmental Coordinator
8.	Mrs. Sabah Abu Shareakh	North Gaza Directorate	(Head of the Health Education and Health Services Division at

Appendix 2: Arbitrators Names:

#	Name	Title
1.	Dr. Abed Al Karim Al Majdalawi	General Manager for Guidance and School Health

2.	Mr. Mazen Al Batniji	Head School Health and Water Department
3.	Dr. Azzam Abu Habib	Project Officer/UNRWA
4.	Dr. Ahmad Helles	Director of the National Institute for Environment and Development
5.	Dr. Bader Hamdan	University Lecturer

Appendix 3: Questionnaire Form

A questionnaire about the role of the Ministry of Education in enhancing environmental conservation in Southern Palestinian governorates

Respected -----,

The researcher is conducting a field study as a requirement for a master's research in Sustainable Development-Building Institutions and human development from Al-Quds University-Abu Dis, entitled "The Role of the Ministry of Education in Enhancing Environmental Conservation in the Southern Palestinian Governorates.

This questionnaire is of great importance to obtain real results. Please devote some of your precious time to answer the questionnaire objectively, noting that the answer is to choose only one choice for each question. Please answer all questions as required. This will have a great impact on reaching more accurate results, also note that your answers will be used for scientific purposes only.

First Section: Demographic Variables

1. Directorate						
				Khan	Mid dle	Ra fah

Gaza North	Gaza East	Gaza West	Khan Younis	Younis East		
2. Age						
30-22	38-31	44-39		More than 45 years		
3. Sex						
Male			Female			
4. Academic Qualifications						
Bachelor		Higher studies		Others		
5. Job						
Headmaster			Teacher			
6. Job Title						
Headmaster		Environmental Club Teacher		School Health Coordinator		
7. School Type						
Girls			Boys			
Co-Education						

Second Section: Educational/ Environmental Programs

Program 1: The Environmentally Sustainable Schools Program

A program that aims to enhance environmental awareness in public schools (for teachers - students - parents) through the implementation of a set of projects and activities.

No.	Question	Strongly Agree	Agree	agree to some extent	Disagree	Strongly Disagree
1	The school distributes printed awareness brochures about environmental conservation.					

2	The school provides posters or murals aimed at raising environmental awareness					
3	The school conducts environmental awareness sessions for students.					
4	The school conducts environmental awareness sessions for teachers					
5	The school conducts environmental awareness sessions for parents.					
6	Teachers receive training to implement the environmental activities of the Environmentally Sustainable Schools Program					
7	The school is interested in forming and activating the environmental club					
8	Schools' Environmental clubs promote environmental awareness through learning by practice					
9	The school organizes environmental trips to educate students about the Palestinian environment					
10	The school uses school radio to educate students about the importance of environmental conservation					
11	The program encourages interactive extra-curricular activities, directly related to the community and the surrounding environment					
12	The Environmental Club educates students about solid waste management and its safe disposal					

13	Students actively participate in recycling and reuse of waste activities					
14	Students demonstrate willingness and readiness to participate in the activities of the Environmentally Sustainable Schools Program					
15	The activities of the program positively affect the change of behavior and environmental attitude in the school (litter removal - cleanliness of facilities and yards - rationalization of resources' consumption)					

Program 2: Environmental Occasions' Revival Program:

A program that focuses on reviving local, Arab, and international environmental events, through the implementation of various environmental awareness activities.

No.	Question	Strongly Agree	Agree	Agree to some extent	Disagree	Strongly Disagree
1	The school provides a calendar of local, Arab, and international environmental events					
2	Teachers and students participate in reviving the environmental occasions					
3	There are a various program's activities implemented (hosting experts - school radios...)					
4	Teachers participate in guiding students towards rationalizing water, energy consumption and					

	maintaining vegetation cover in schools					
5	There are partnerships with related parties to revive environmental occasions					
6	Partnership with other institutions contributes to the effective implementation of program's activities.					
7	The school shares the news of the implemented activities with the students and publishes them on the school's page and social media channels					
8	The program focuses on instilling environmental concepts while implementing environmental activities					
9	The program aims to enhance the environmental awareness of students					
10	The Program focuses on enhancing the awareness of different segments of society					
11	Students show interest in participating in environmental activities within this program					
12	There is an improvement in the environmental behavior of students in the school					

Program 3: Green space program:

A program that aims to promote environmental awareness. Students and various parties of society participate in implementing afforestation campaigns and building green spaces in schools.

No	Question	Strongly Agree	Agree	Agree to some extent	Disagree	Strongly Disagree
1	The school is interested in putting up signboards inside the school urging students to take care of the trees					
2	The program contributes to educating students about the importance of vegetation cover for environmental conservation					
3	Teachers participate in planting seedlings					
4	Students participate in planting seedlings					
5	Other actors besides the Ministry of Education contribute to facilitating afforestation activities					
6	The school provides awareness sessions for students on protecting school gardens.					
7	The school provides awareness sessions for teachers on implementing activities related to protecting school gardens					
8	The program contributes to improving students' understanding and attitudes to the negative repercussions resulting from neglecting trees.					

9	The program enhances students' knowledge of climate change and biodiversity.					
10	Students demonstrate willingness to participate in green spaces program activities					

Third Section: Environmental Conservation:

Focus on protecting ecosystem and environmental resources through actions taken at the level of governments, institutions, and individuals

No.	Question	Strongly Agree	Agree	Agree to some extent	Disagree	Strongly Disagree
1	The school use signboards inside the school to rationalize water use					
2	The school use signboards inside the school to rationalize energy use					
3	Students rationalize water consumption in schools					
4	Students rationalize energy consumption in schools					
5	The school considers providing containers for sorting waste (plastic - paper..)					
6	Students participate in school initiatives to implement solid waste management strategies through reduction, reuse, and recycling.					

7	Students contribute to reducing the amount of waste produced daily					
8	Students practically participate in afforestation in and around schools					
9	Students behave correctly towards trees planted in school yards					
10	The students regularly take care of the planted trees					
11	The school administration participates in fixing damaged water taps or sewage leaks.					
12	Teachers are interested in reporting any environmentally inappropriate behavior by students (take down trees - wasting drinking water and bathrooms).					
13	The school participate in projects related to water desalination inside schools					
14	Students inform school's administration when observing tree-damaging behavior by one or a group of students					

Appendix 4: Interview Questions

- 1. What are the educational policy tools considered to enhance the implementation of educational programs related to environmental conservation at the governmental schools in the Southern Palestinian Governorates?**

- 2. To what extent the partnership is important for the implementation of educational programs targeting the environmental conservation?**

- 3. How does the MOE identify the environmental needs/problems inside schools?**

- 4. How does the MOE evaluate educational programs applied in schools?**

- 5. What are the main funding sources that support educational programs that target the environmental dimension in schools?**

6. What are the main obstacles/difficulties facing the implementation of educational programs in schools?

Appendix 5: Focus Group Questions:

1. What do you know about the environment?
2. What is the importance of environmental conservation?
3. What do you know about the types of waste and the importance of sorting waste to the environment?
4. What are the threats that face the environment?
5. Do you agree that “everyone in society is responsible for environmental conservation”?
6. Do you have the initiative to advise others (throwing paper in the trash - rationalize the utilization of water and energy)?
7. Do you notify the school administration if you notice environmentally unfriendly practices by students that harm the environment?
8. What are environmental activities and events implemented in your school?
9. Where do you get environmental information from (environmental events, curriculum, radio, school, and educational sessions)?
10. What motivates you to participate in environmental events (environmental trips - environmental clubs - school morning program - practical participation in events - environmental events)?
11. Have you participated in initiatives to reuse and recycle waste in school?
12. Have you participated in afforestation activities at school?
13. Do you share environmental information with your family? Do you apply what you learn in school at home?

Appendix 6: Photos for Focus Groups Meeting



Appendix7: Facilitation of Researcher Mission



بسم الله الرحمن الرحيم

معهد التنمية المستدامة

Institute of Sustainable Development



التاريخ 2022/7/2

تسهيل مهمة

يفيد برنامج التنمية المستدامة - بناء مؤسسات وتنمية موارد بشرية - جامعة القدس بأن
الطالب/ة رقمه/ها الأكاديمي : 22.0.1.20.46
هو/هي أحد طلبة معهد التنمية المستدامة في جامعة القدس يقوم بعمل بحث ودراسة عن :
.....
.....
.....
وعليه نرجو التكرم منكم بمساعدته/ها للحصول على المعلومات اللازمة لهذه الدراسة ،علما بأن
المعلومات والبيانات التي يحصل عليها الطالب تعامل بسرية تامة ولأغراض البحث العلمي فقط .

وتفضلوا بقبول وافر الاحترام والتقدير ،،،

د. تهاني حنظل
مديرة مركز
معهد التنمية المستدامة
Al-Quds University
Institute of Sustainable Development



الرقم : و ت غ / ()

التاريخ : 2022/07/06م

المحترمون

السادة / مديرو التربية والتعليم

السلام عليكم ورحمة الله وبركاته...

الموضوع / تسهيل مهمة باحث.

نهديكم أطيب التحيات، وبالإشارة إلى الموضوع أعلاه، يرجى تسهيل مهمة الباحثة/ نهى أحمد اليعقوبي، المسجلة لدرجة الماجستير في جامعة القدس - أبوديس، معهد التنمية المستدامة، والتي تجري بحث بعنوان:

" دور وزارة التربية والتعليم في الحفاظ على البيئة في المحافظات الفلسطينية الجنوبية "

في تطبيق أدوات الدراسة على عينة من المشرفين والمعلمين والطلبة لديكم، وذلك حسب الأصول.

وتفضلوا بقبول فائق الاحترام والتقدير،،،

أ.عائد عبد اللطيف الربيعي
مدير عام التخطيط والتطوير



نسخة لـ

- ✓ السيد / وكيل وزارة التربية والتعليم العالي
- ✓ السيد / وكيل الوزارة المساعد لشؤون التعليم العالي
- ✓ السيد / مدير عام الارشاد والمحة
- ✓ عبير الأشقر
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