



SUSTAINABLE PROSPERITY: A STRATEGIC VISION FOR AGRICULTURAL GROWTH, TOURISM DEVELOPMENT, AND AGRI-FOOD INNOVATION IN JERICHO AND AL-AGHWAR GOVERNORATE



It is with much pleasure that I submit to you the Jericho Governorate and AL Aghwar Strategic Plan, This plan serves as a critical guide for our future, focusing on the development of two key sectors: agriculture and tourism—that are essential to our economy and culture, despite the ongoing challenges we face.

”يسعدني أن أقدم لكم خطة محافظة أريحا والأغوار الاستراتيجية. تشكل هذه الخطة دليلاً مهماً لمستقبلنا، حيث تركز على تطوير قطاعين أساسيين: الزراعة والسياحة، اللذين يشكلان جزءاً أساسياً من اقتصادنا وثقافتنا، على الرغم من التحديات المستمرة التي نواجهها.

In spite of the Israeli occupation and the restrictions that have been put on us, we did not relent in the pursuit of the vision of a prosperous Jericho. The strategic plan identifies the problems of the local society, including economical constraints, lack of access to resources and mobility, while taking advantage of possible positive changes for the well-being of the society, economy, and the environment. Additionally, the plan seeks to harness the full potential of our agricultural and touristic assets, with the goal of fostering sustainable growth and improving the quality of life for all our citizen.

على الرغم من الاحتلال الإسرائيلي والقيود المفروضة علينا، لم نتراجع في سعيينا نحو تحقيق رؤية أريحا المزدهرة. تحدد الخطة الاستراتيجية المشاكل التي تواجه المجتمع المحلي، بما في ذلك القيود الاقتصادية، وعدم الوصول إلى الموارد، وصعوبات التنقل، بينما تستفيد من الفرص الممكنة لتحقيق التغيير الإيجابي من أجل رفاهية المجتمع والاقتصاد والبيئة. بالإضافة إلى ذلك، تسعى الخطة إلى استغلال كامل إمكاناتنا في القطاعين الزراعي والسياحي بهدف تحقيق النمو المستدام وتحسين جودة الحياة لجميع مواطنينا.

Our Governorate is blessed with fertile agricultural land and a rich heritage of farming that has sustained generations. This plan aims to modernize agricultural practices, promote crop diversification, and ensure better access to markets. By investing in these areas, we can strengthen the agricultural sector and enhance food security while providing more opportunities for local farmers and communities.

تتمتع محافظتنا بأراضٍ زراعية خصبة وتراث غني في مجال الزراعة الذي دعم الأجيال السابقة. تهدف هذه الخطة إلى تحديث الممارسات الزراعية، وتعزيز تنوع المحاصيل، وضمان وصول أفضل للأسواق. من خلال الاستثمار في هذه

المجالات، يمكننا تقوية القطاع الزراعي وتعزيز الأمن الغذائي مع توفير المزيد من الفرص للمزارعين والمجتمعات المحلية.

This plan is the outcome of numerous meetings, discussions and visions of local institutions, stakeholders and experts. This is a proof of our willingness to face challenges and collaborate towards the achievement of a better future for all. We aim to develop a governorate that is dynamic, creative, and provides a suitable standard of living for every individual in it regardless of the conditions.

تعد هذه الخطة نتيجة للعديد من الاجتماعات والنقاشات والرؤى التي قدمتها المؤسسات المحلية والأطراف المعنية والخبراء. وهذه هي دليل على استعدادنا لمواجهة التحديات والتعاون من أجل تحقيق مستقبل أفضل للجميع. نحن نسعى لتطوير محافظة ديناميكية، مبدعة، وتوفير مستوى معيشة مناسباً لكل فرد فيها بغض النظر عن الظروف.

I appeal to each of you to join us in this effort to achieve our vision. Together, we will ensure the successful implementation of these plans, benefiting Jericho and setting an example of resilience and progress.

أدعو كل واحد منكم للانضمام إلينا في هذا الجهد لتحقيق رؤيتنا. معاً، سنضمن تنفيذ هذه الخطط بنجاح، مما يعود بالفائدة على أريحا ويكون مثلاً على الصمود والتقدم.

Dr. Hussein Hamayel

The Governor of Jericho and AL Ahgwar

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1.1 Executive summary:

The Strategic Plan of Territorial Enhancement for the Jericho and Al-Aghwar Governorate (2025–2030) represents a comprehensive framework aimed at addressing the critical developmental challenges and leveraging the unique potential of the region. This strategic plan updates the previously expired 2018–2023 plan, focusing on agriculture, agribusiness, and ecotourism sectors to empower the local economy, create employment opportunities, and improve the livelihoods of residents. It is not only addressing current developmental gaps but also sets a visionary path for a resilient and sustainable future for Jericho and Al-Aghwar Governorate. It emphasizes collaboration among government entities, local communities, and international partners to achieve its objectives.

Jericho, known as the oldest city in the world, boasts a wealth of natural, agricultural, and historical resources, making it a pivotal region for Palestine's economic growth. However, the region faces numerous challenges, including limited access to natural resources, occupation-related constraints, and a lack of infrastructure and innovative solutions. This plan seeks to integrate the National Policy Agenda (2017–2022) and the Sustainable Development Goals (SDGs-2030), ensuring alignment with national priorities and global best practices.

The plan targets three priority sectors, which together create a diversified and resilient economy, while reducing dependency on external economies and fostering sustainability.

1. Agriculture, through strengthening date palm farming, promoting sustainable agricultural practices, and improving market access for farmers.
2. Agribusiness, and enhancing value chains, introducing modern storage and processing facilities, and encouraging investment in food industries.
3. Ecotourism, and developing community-based tourism, integrating agritourism experiences, and improving infrastructure to attract both domestic and international visitors.

At the macroeconomic level, Jericho and Al-Aghwar suffers from high unemployment among youth and women, and barriers to accessing finance and investment opportunities. Also, the report identified key challenges in the agriculture and tourism sectors in Jericho and Al-Aghwar. The agricultural sector faces limited access to water resources and high salinity issues, competition from settlement-produced goods, and lack of storage facilities, resulting in post-harvest losses. Tourism sector is affected by insufficient infrastructure for extended tourist stays, limited integration of ecotourism with cultural and agricultural experiences, and dependence on short-term external tourism, with minimal local community engagement.

To mitigate these challenges, the plan proposed key strategic actions, such as implementing blockchain technology for supply chain transparency in agriculture, establishing cold storage and processing facilities to enhance the

value chain of date palms, expanding ecotourism initiatives through partnerships with local communities, showcasing Jericho's rich biodiversity, cultural heritage, and agritourism potential, and developing educational programs in technical and vocational training (TVET) to build capacities in agriculture and tourism sectors.

These strategic actions and interventions are expected to enhance competitiveness of local products in regional and international markets, increase job opportunities, especially for youth and women, strengthen local governance and stakeholder engagement, and sustainable use of natural resources, ensuring long-term economic and environmental benefits.

The plan proposed three concept notes for Agriculture, Agrifood Industry, and Ecotourism in Jericho and Al-Aghwar Governorate, which propose innovative strategies to harness the region's agricultural wealth and natural beauty for sustainable economic growth. The focus is on enhancing competitiveness, fostering community engagement, and promoting sustainability across the agriculture, agrifood, and ecotourism sectors.

In the agricultural sector, the emphasis is on modernizing farming practices, especially in date palm cultivation, which is a cornerstone of Jericho's economy. The proposed interventions include implementing advanced irrigation systems to conserve water, expanding post-harvest processing facilities, and promoting climate-resilient farming techniques. By increasing the capacity of cold storage facilities and integrating blockchain technology for supply chain transparency, the plan aims to boost productivity, increase export potential, and enhance local farmers' incomes.

For the agrifood industry, the focus is on developing manufacturing units to process surplus grade 3 Medjool dates into value-added products like energy date bars and molasses. Establishing such facilities will not only absorb surplus production but also enrich the agrifood sector with healthy, innovative products. Improving packaging and marketing strategies, along with obtaining necessary certifications, will enhance product appeal and market reach, both domestically and internationally. This initiative is expected to create job opportunities and stimulate the local economy.

In the ecotourism sector, the concept notes propose creating engaging tourist experiences that integrate agricultural and cultural tourism. Projects like farm stays in palm farms, hands-on participation in harvesting dates, cooking with local ingredients, and eco-friendly tours aim to attract a new segment of tourists seeking family-friendly and sustainable experiences. By strengthening tourism infrastructure and promoting Jericho's rich historical and natural assets, the strategy seeks to extend tourist stays, increase visitor spending, and enhance the region's visibility as a prime destination for both domestic and international tourists.

1.2 Introduction

Jericho governorate is in the process of updating the expired strategic planning (2018 - 2023) for the Governorate with a new one covering the period extend from year 2025 to 2030. Updating the strategic planning is a part of Jericho Vale! Project - Supporting inclusive and sustainable territorial enhancement for the agri-food sector - (AID 012314/01/8) in Jericho and Al-Aghwar governorate. An initiative which is implemented by Bergamo Municipality in partnership with the John Paul II Foundation with the financial support of the Italian Agency for Development Cooperation AICS. The updating process will focus on the agriculture, agroindustry, and Agri-Ecotourism sectors, that is aligned with Jericho Vale! General objective of contributing to the strengthening of the territorial institutional system for the promotion of economic inclusion and the enhancement of the territory of the Jericho Governorate and specifically, to improve the local territorial governance system and to strengthen the support services for employment and enterprises in the agri-food sector of the Governorate of Jericho.

The new updated plan will consider the National Policy Agenda (2017-2022), sustainable developed goals (SDGs – 2030) and other national strategic plans. The new strategic plan should determine the developmental priority sectors which could contribute in empowering the economy, creating jobs, and enhancing the livelihoods for people in Governorate of Jericho and Al- Aghwar. A part of the study is to meet the relevant stakeholders, decisions makers, ministers, mayors, non- government organizations, directorate of agriculture and tourism in Jericho Governorate. In addition, the study will recommend four investment opportunities in the above-mentioned sectors and draft the four concept notes.

This study aims to propose a strategic plan of territorial enhancement in Jericho and Al-Aghwar Governorate based on the diagnostic and spatial development plan (2018 – 2023) for Jericho and Al-Aghwar Governorate with focusing on Agriculture mainly date palm farming, Agrifood industry, and Eco-tourism. The vision of the economic committee of Jericho and Al-Aghwar governorate stated that: Integration of agriculture and industry, thriving tourism, integrated population development, and independence on the Israeli economy (Final report, CEC, 2018). Despite the developmental issues and goals in the diagnostic plan (2018) which aimed to increase the number of tourists to the archaeological sites, and providing adequate attention to the agricultural sector in the governorate. However, unfortunately, part of the suggested projects in the spatial plan for Jericho and Al-Aghwar (2018– 2023) did not fill the gap that Jericho Governorate is really needing for development beyond year 2025 in the sectors of agriculture, Eco and Agritourism, and agrifood. For instance, the tourism of villas targeting the internal tourism's is dominating now, while the external tourism in the governorate is still suffering. The quantity of produced Dates is exceeding the storage capacity in the governorate leaving the small farmers without any protection and pushing them to sell their product for

middlemen's and traders with an unfair price. The crucial issues for agriculture, agri-food, and ecotourism that the Governorate really needed were not mentioned in the proposed developmental issues, such issues might include: protecting the Palestinian Dates fruits by developing a block chain traceable system to avoid the smuggling of Dates from settlement in Jordan Valley, installing a cold storage facility to store the surplus amount of date fruits, establishing a facility to manufacturing Molasses and syrup from low quality Dates. Moreover, the tourism sector did not connect and integrate with other sectors in a proper way mainly in the evening such as Folklore and cultural activities, tourism pathways, Eco and agricultural tourism. Based on the discussion with the director of Jericho Tourism Directorate Mr. Iyad Hamdan, the tourists are usually bored during the evening and the rest of the night, because there are no places or activities that can host them. Such boring condition will not encourage the tourists to stay and sleep in Jericho.

1.3 Objective of the Strategy

The main objective of this study is to update the expired strategic plan (2018 – 2023) for Jericho and Al-Aghwar governorate considering the development priorities and needs for the governorate beyond year 2025. Moreover, the strategy will consider the National Policy Agenda (2017-2022), sustainable development goals (SDGs-2030), and other national strategic and diagnostics plans. The overall goal of the new strategic plan (2025 – 2030) is to empower the economy, creating jobs, and enhancing the livelihoods for people in Governorate of Jericho and Al-Aghwar. In this study, priority will be given to agriculture mainly date Palm farming, agri-food industry, and Ecotourism sectors to align with the approved vision in final report in strategic study; "An agricultural and touristic province that encourages investment, has an integrated infrastructure that relies on community partnership, fortified by organized legislation and a cohesive society that achieves equality, justice and sustainability".

Another objective of the study is to propose three investment opportunities in the above-mentioned sectors and to draft three concept notes. Subsequently, the proposed concept notes will be financed and adopted by relevant donors' agency in Palestine. Thus, updated strategic plan (2025 – 2030) will enhance the contribution of the above-mentioned sectors in the Gross domestic product GDP.

1.4 Methodology

The consultant will review in details the current strategic planning (2018-2023) and relevant national documents in order to understand the current situation and prioritize the sector in Jericho governorate. As well desk review, will be done to be sure that all project outputs align with other national strategies and visions. Not exclusively, but for example, strategic plan for ministry of agriculture (2017-2022), agriculture census 2021, Jericho Vale! project document, strategic plan for Jericho municipality and Local development framework will be reviewed carefully.

Field visits and meetings will be done either face to face or virtually with stockholders when its necessary in to understand the needs of target communities (bottom-top approach). The following stakeholders will be targeted:

Agriculture sector:

- Jericho Governorate
- Advisory Council for Jericho and Al-Aghwar Governorate
- Ministry of agriculture
- Directorate of agriculture in Jericho: Eng. Ashraf Barakat
- Al-Wadi Company – Dr. Ismail Daiq
- Jericho Municipality: Mayor
- Palm Farmers' Cooperative Association in Jericho & Jordan Valley. Eng. Mohamad Al-Qawasmi
- PARC
- Jericho Commerce of chamber

Agrifood sector

- Al-Reef company: Eng. Saleem Abu Gazalah and Dr. Mohamad Ehmadat
- Mohamad Qawasmi / Date paste industry
- QITAF – Eng. Moen Shtayia
- Al-Wadi Company: Date Palm and packing house for date industry.
- Jericho Commercial, Industrial, and Agricultural Chamber

Eco-Tourism sector

- Ministry of Tourism
- Jericho Municipality
- Jericho Governorate
- Advisory Council for Jericho and Al-Aghwar Governorate

At least two meetings will be done with Advisory board for Jericho and Al-Aghwar governorate; in the first meeting, the primary collected data and outputs will be discussed. In the second meeting, the main findings, draft of study document, and concept notes will be presented for the board.

1.5 Literature Review

1.5.1 Strategic Plans

a. Spatial development strategic framework for villages and small towns in Jericho Governorate” diagnostic report

The spatial development strategic framework for villages and small towns in Jericho Governorate came with ambitious vision:

“An agricultural and touristic province that encourages investment, has an integrated infrastructure that relies on community partnership, fortified by organized legislation and a cohesive society that achieves equality, justice and sustainability”.

Initial reviewing for the diagnostic report revealed that agriculture and agribusiness sector are suffering from the following main issues:

- Lack / shortage of water sources and irrigated land
- Poor awareness of water saving methodology among users and owners
 - Soil erosion and soil and water salinity
 - Difficulty in accessing financing sources for farmers
 - Limited access to alternative markets and high export transaction costs.
 - Poor packaging and labeling services for agricultural products
- Poor testing and certification services for farmers
- Poor IT services.
- Lack of effective farmer linkages to improve water resource management and to reduce costs input, and to improve marketing.
- Shortage in qualified staff from the governorate in terms of quality and quantity

Whereas the main issues and problems for villages and small towns in Jericho Governorate, includes:

- Scarcity of and limited water resources
- High salinity of water in some wells
- Weakness in local agricultural marketing and export
- Flooding the market with Israeli products
- Absence of experienced people, technicians and specialists in the agricultural sector
 - Cultivation types of crops require high costs and more irrigation water, such as palm cultivation
- High production costs for agricultural production requirements, and reliance on the Israeli market.

Therefore, several suggestions were proposed to solve agricultural problems in the governorates such as:

- Establish new roads and rehabilitate the old ones.
- Establish gross general markets
- Rehabilitate water reserves and maintain water irrigation system.
- Invest in new projects, mainly in food processing.
- Land Reclamation
- Encourage and diverse agricultural products marketing.
- Provide farmers with adequate training and experience in order to increase land profitability.

1.5.2 Agricultural and Tour guiding TVET in Jordan Valley.

As Palestinian unemployment rates are high, especially among youth and university graduates, and poverty is hitting large segments of society, many – including government and policy makers are turning their attention to the Technical and Vocational Education and Training (TVET) system. The TVET system in Palestine is quite small and, unfortunately, still fragmented. Therefore, there is a need to enhance the TVET sector in Jericho and Al-Aghwar Governorate. The most important developmental sectors that are able to create jobs in Jordan Valley is the agriculture and tourism. Thus, there is a need to develop the above two sectors to enhance the employment rate through developing the Agricultural Technical and Vocational Education and Training (TVET) and Tour guide profession in Jordan Valley. The agricultural TVET could be allocated to the Arab Development Society (ADS), because they had excellent experience in this topic since 1945, while the Tour guide profession might be allocated to the TVET training center which belongs to the Young Men's Christian Association. The TVET program will be targeting both the educated and uneducated youth. An Example of Agricultural TVET include:

- Plant production technician
- Animal production technician
- Sustainable agriculture and home gardens technician

The responsibility of the Tour guide might include but not limited to

- Greeting and welcoming customers to the tour.
- Informing customers about the itinerary for each tour.
- Planning itineraries in accordance with weather forecasts and the length of each tour.
- Scheduling visits and purchasing tickets to museums, galleries, protected parks, and other attractions ahead of time, if required.
- Planning alternate activities in the event that cancellations, closures, or weather prohibit you from attending

scheduled events.

- Gathering and maintaining the requisite equipment for each tour.
- Familiarizing yourself with the layout and history of the region or establishment in which you will be working.
- Familiarizing customers with each region or establishment.
- Encouraging guests to apply sunscreen regularly and to remain hydrated, if applicable.
- Directing customers to other, noncompeting services that might be of interest to them.

1.5.3 Ecotourism

Palestine, a region connecting Africa with Eurasia, is a prime example of a destination rich in biodiversity, making it an ideal location for ecotourism. Its diverse habitats, which span five ecological zones (Central Highlands, Semi-coastal Region, Eastern Slopes, Jordan Rift Valley, and Coastal Regions) and five phytogeographical areas (Coastal, Mediterranean, Irano-Turanian, Saharo-Arabian, and Sudanese/Ethiopian), along with its mild weather, fertile soils, and diverse wildlife (Qumsiyeh & Abusarhan, 2021), offer unique opportunities for ecotourism. The diversity of ecological zones and phytogeographical areas in Palestine provides a wide range of environments for tourists to explore, from the Central Highlands to the Coastal Regions. This diversity, coupled with the region's rich history and culture, makes Palestine a unique destination for ecotourism.

However, like many regions around the world, Palestine has experienced significant environmental changes due to human activities such as industrialization, climate change, and colonization. These changes have had a profound impact on its biodiversity. Incidents in 2019, including deforestation and pollution caused by Israeli actions, have had detrimental health consequences for the local population and the ecosystem (Hammad and Qumsiyeh, 2013; Khlaif and Qumsiyeh, 2017). These environmental challenges highlight the need for sustainable tourism practices that not only minimize negative impacts but also contribute to the conservation of local ecosystems. Ecotourism, with its emphasis on sustainability and conservation, can play a crucial role in mitigating these impacts and promoting the recovery of local ecosystems. By promoting sustainable living and conservation, ecotourism can contribute to the preservation of biodiversity in Palestine and enhance the well-being of local communities.

1.5.3.1 Concept

Ecotourism can be defined as a travel primarily focused on the exploration of a destination's natural history. It represents a non-intrusive, interactive type of tourism rooted in nature, which emphasizes education,

sustainability (including conservation and benefits for the local community), and the ethical planning, development, and management of the experience (Fennell, 2020).

Ecotourism, one of the fastest-growing segments of tourism, has gained significant attention due to its environmental and ecological potentials:

1. It supports nature's protection, improves local communities' socio-economic conditions, contributes to increasing their education level, and is linked to natural factors such as topography, hydrology networks, meteorological and the biological characteristics of the destinations.
2. It can create new employment opportunities for people living in remote areas with poor economic conditions and high underemployment rates, requiring less investment and positively impacting urban and rural transformations with sustainable management and development.
3. Ecotourism can also benefit biodiversity conservation in many ways: support for wildlife and protected areas, diversified livelihoods, environmental interpretation and ethics, and strengthened resource management institutions.

Ecotourism initiatives align well with the objectives of UNESCO Biosphere Reserves (BR), which aim to balance conservation and sustainable development (Schultz, Duit, & Folke, 2011). The UN World Commission on Environment and Development (Brundtland Commission) defined sustainable development as development that meets the needs of current generations without compromising the ability of future generations to meet their own needs. Nature conservation, defined as the sustainable management of human use of organisms or ecosystems, is a crucial part of sustainability.

1.5.3.2 Community-based Ecotourism

Over the past years, ecotourism has left a significant legacy, particularly in its impact on community-based ecotourism (CBE). Successful outcomes in this area require careful planning, adequate resourcing, and effective leadership from a diverse array of partners (Weaver, 2011). Collaborations and partnerships between communities, businesses, non-profit organizations, funding bodies, and development agencies are crucial in reaping the benefits of CBE (Stone, 2015).

CBE is characterized by significant local community control over its development and management, with a substantial proportion of the benefits remaining within the community (WWF, 2001). CBE has the potential to shift community perceptions positively regarding the use of natural and cultural resources (Stone, 2015).

Community participation, ownership, and empowerment play a pivotal role in achieving sustainable tourism through community-based natural resources management (CBNRM) (Stone, 2015). For instance, in Botswana, communities residing in wildlife-rich areas have embraced CBNRM, under the premise that a community will manage natural resources more effectively once it recognizes the benefits derived from them (Mbaiwa, 2011).

1.5.3.3 Challenges for Ecotourism

Ecotourism is facing numerous challenges that obstruct its proper and sustainable development. These challenges, which vary across different countries, underscore the need for tailored strategies and interventions to foster the sustainable development of ecotourism in each context (Mgonja, Sirima, & Mkumbo, 2015).

A common challenge is the lack of access to capital, which hinders local people's participation in ecotourism activities. In Mexico, the challenge lies in the absence of an appropriate design of public policies that can generate economic prosperity and social welfare (González Fonseca, 2012). Ethiopia faces multiple challenges, including limited awareness and concern of local communities for the conservation of environmental attractions, degradation of natural resources (Otago, 2014), a lack of national strategies and regulatory frameworks, and inappropriate use of ecosystems by the inhabitants (Teressa, 2015).

In Albania, uncontrolled grazing, illegal hunting, and poaching pose significant challenges (Bego & Maltezi, 2011). Nigeria's ecotourism development is hindered by inadequate facilities and financing, poor infrastructure, and seasonal inaccessibility (Ijeomah & Okoli, 2016). Turkey's challenges include the lack of an operating plan, the absence of a responsible organization, and the lack of adequate services and qualified staff (Cetinkaya, 2004).

Sri Lanka's ecotourism faces a lack of financial and human resources, poor management, a lack of a clear vision, and a lack of basic tourism infrastructure (Fernando & Shariff, 2017). In Kenya, the challenges include a lack of appropriate management plans and guidelines, insufficient staff, a lack of partnership programs, and security issues (Okech, 2011). These challenges highlight the complexity and diversity of issues that need to be addressed to promote sustainable ecotourism (Makia & Hanifezadeh, 2021).

1.5.3.4 International Practices for Ecotourism

➤ **Jordan**

The Dana Biosphere Reserve (DBR), located in Southwest Jordan, was established in 1989 and covers almost 310 km². It is managed by the Royal Society for the Conservation of Nature (RSCN) in cooperation with local communities (Dudley & Phillips, 2006). The reserve extends from the eastern Rift Valley to the desert lowland of Wadi Araba (Al-Qawabah et al., 2003) and was designated as a biosphere reserve by UNESCO in 1994 (Eid et al., 2013; Jamaliah & Powell, 2017).

The climate in DBR varies widely based on elevation, with the eastern part having a Mediterranean climate and the western part (Wadi Araba) having a semi-arid climate. Precipitation is highly seasonal and varies based on geography and elevation.

DBR is ecologically diverse, containing 833 species of plants, more than 250 species of birds, and over 40 species of mammals. Several of these species are globally endangered. The reserve also has archeological

sites of various origins and a small heritage village, Dana Village.

Almost 31,000 people live in and around DBR, distributed across four communities located in two distinct geographical and climatic zones. The communities primarily work in the military, cement and phosphate factories, governmental institutions, and in agriculture and the raising of livestock. As a biosphere reserve, DBR's managers provide opportunities for local involvement in environmental management issues and implement a range of ecotourism and economic projects. DBR also employs zonal management as a mechanism for protecting sensitive environment habitats and delineating land use for appropriate activities.

With respect to ecotourism infrastructure, DBR developed an information center, eight hiking trails, and three places of visitor accommodation. In cooperation with the United States Agency for International Development (USAID), DBR has restored Old Dana Village and developed ecotourism facilities such as handicraft workshops, a conference center, and a museum (Al Haija, 2011). As a result, DBR has become a popular ecotourism destination in Jordan, attracting almost 60,000 domestic and international tourists yearly (RSCN, 2010; Jamaliah & Powell, 2017).

➤ **Iran**

Iran's natural attractiveness, unspoiled landscapes, and favorable climate reinforce its potential for ecotourism development (Pourasghari & Amar, 2018). The country, predominantly arid, is covered by rangelands, forests, and arid deserts and salt marshes. Its climate diversity and biodiversity contribute to its ecotourism wealth. Iran's protected areas have increased to 185, with 150 having national designations and 35 with international designations (UNEP-WCMC, 2020).

The Iranian ecotourism industry is relatively new but has excellent growth potential due to the country's many natural attractions (Riasi & Pourmiri, 2015). However, Iran accounts for less than 1% of the Middle East's global ecotourism market. Ecotourism activities in Iran include winter sports, nature excursions, hunting, fishing, water sports, desert excursions, eco-therapy, climbing, caving, hiking, trekking, cycling in nature, stargazing, bird watching, visiting geomorphological attractions, visiting wildlife and national parks, jungle excursions, village tours, surviving in the wilderness and experiencing nomadic life.

➤ **Italy**

Several BRs worldwide have employed ecotourism to promote conservation awareness and sustainable local development (Mondino & Beery, 2018). An example is the Monviso Transboundary BR (MBR) in Italy, designated by UNESCO in 2013 and recently awarded the European Charter for Sustainable Tourism in Protected Areas (ECST).

The Parco del Po Cuneese was transformed into the Parco Naturale del Monviso, which spans over 8334 hectares and includes the territories of the previous park plus the Alevè forest in Varaita valley, and the Prà-

Barant oasis in Pellice valley (Parco del Po Cuneese, 2015).

In 2013, the Monviso area became Italy's first Transboundary Biosphere Reserve (MBR), simultaneously with the approval of a 'twin' French reserve by UNESCO, which made MBR the ninth Biosphere Reserve in Italy, bringing the country's total to fourteen (UNESCO, 2016).

UNESCO describes MBR as a mosaic of ecosystems, ranging from the arid and rocky landscape found in the high altitudes of the Monviso massive to the unusual forest ecosystem, which hosts, among others, *Pinus cembra*. The Alevè forest, which follows the whole length of the Western Alps, is the most unique and intact part of the reserve (UNESCO, 2013).

➤ **Costa Rica**

Costa Rica, particularly the Osa Peninsula, is highlighted as a major ecotourism destination. The local economy in the Osa Peninsula is driven by small-scale nature-based tourism, much of which aligns with the definition of ecotourism by the International Ecotourism Society (TIES) as responsible travel to natural areas that conserves the environment and improves the welfare of local people (Hunt et al., 2015).

Ecotourism is a highly valued economic venture in the Osa Peninsula. It is seen as offering steady, well-compensated employment, and greater prospects for progression compared to other economic activities. Moreover, it is acknowledged for its role in transforming local viewpoints towards a more positive perception of Corcovado National Park and other protected regions. Despite its uneven distribution across the Peninsula, the economic influence of ecotourism is extensive, with the majority of other business sectors linking their prosperity, either directly or indirectly, to the vitality of the tourism industry (Hunt et al., 2015).

1.5.4 Blockchain Technology for the development of Agri-Tourism

Blockchain is a new technology that operates a public ledger that is trustless, indisputable, and theoretically tamper-proof (Nofer et al., 2017)¹. Blockchains have three key characteristics: open, have a full and public history of transactions, and are operated through a cryptographic consensus protocol (Ghiro et al., 2021). Blockchain network maintains a permanent record of all transactions (Filimonau and Naumova, 2020). This makes Blockchain an ideal solution for industries that deal with sensitive information, assets or processes, as they require transparency, security and reliability (Antoniadis et al., 2020).

The intersection of Blockchain technology, tourism, and sustainability is ushering in a new age of transparent, eco-conscious, and socially responsible travel (Buhalis et al., 2022; Joy et al., 2022).

Smart farming is a rapidly growing sector in the agriculture industry today using modern technologies

1 Nofer, M., Gomber, P., Hinz, O. *et al.* Blockchain. *Bus Inf Syst Eng* **59**, 183–187 (2017). <https://doi.org/10.1007/s12599-017-0467-3>

such as the Internet of Things (IoT), big data analytics and Artificial Intelligence. It enables farmers now to monitor their crops and livestock more efficiently and forecast its future requirement. Blockchain for example can help to ensure food safety, traceability, and transparency while reducing costs coupled with making payment digitally and finally increasing efficiency (John and Rose, 2024).

In the tourism industry, Blockchain technology offers the possibility of establishing a secure and transparent platform for travel bookings and transactions (Güvenol and Güler, 2023). Furthermore, Blockchain technology can securely store and manage travel data (Tyan et al., 2021).

Blockchain is increasingly employed in Smart Tourism to prompt sustainable travel practices, by incorporating Environmental, Social, and Governance (ESG) metrics into the Blockchain (Park and Li, 2021). Blockchain technology provides a personalized and seamless travel experience through improving check-in speed, reduces waiting times, and enhances the overall travel experience ((Erol et al., 2022), which is a significant advantage for the tourism industry (Ferrell and Ferrell, 2021). Also, the implementation of tourism Blockchain technology provides travel companies with competitive advantages in the digital space, through integrating Blockchain technology into a company's website and marketing strategies has the potential to enhance customer experience, increase brand loyalty, and ultimately boost sales and conversions (Rashideh, 2020).

In agriculture tourism (Agritourism), Blockchain can enhance sustainability efforts by enabling effective monitoring of supply chains, validates eco-friendly certifications, verifies adherence to sustainable practices, empowers local communities by offering a decentralized platform for participation and decision-making (Merrell, 2022).

However, the efficient employment of Blockchain to develop Smart Agritourism needs to meet some requirements, precisely, enhancing tourism experience, rewarding sustainable behaviour, and ensuring the benefits for local community (Tyan et al., 2020).

- To enhance tourism experience, Smart Agritourism are expected to provide a number of personalised services, namely: providing all relevant real-time information based on user profiling to support planning phase before trip, ensuring access to real-time information to assist tourists in exploring the destination, and enabling a decent feedback system that allows the tourists to review their experiences.
- Sustainability is the main focus of Smart Agritourism; blockchain technology can encourage and reward sustainable behaviours of both tourists and residents. Some people do not pay much attention to the impacts their behaviour could have on the destinations' environment; however, incentives may positively change their attitudes and behaviours. It can also create a cryptocurrency-based reward system, which would allocate rewards to the tourists and residents

with sustainable behaviours.

- Smart Agritourism put emphasis on providing economic benefits to local communities who can have an equal access to open data as well as directly reach the tourists and offer them different tourism services and goods. Blockchain technology will enable diverse cryptocurrencies in Smart Agritourism, allowing both tourists and locals the possibility to make payments in a secure and efficient way, meanwhile, local community can invent its own cryptocurrency and use it on local tourism market, thus boosting local economy.

To develop Blockchain for Smart Agritourism, it is important to consider these recommendations or steps:

1. Integration of smart farming solutions by using blockchain to ensure that agricultural products are reliably traced from production to sale, which can attract tourists interested in eco-friendly and sustainable farming practices.
2. Development of smart tourism destination by providing a decentralized platform for the exchange of tourism data among all stakeholders. This includes real-time information sharing, secure booking, and transaction platforms that can attract tourists who value transparency and data security.
3. Personalized tourist experiences by integrating Blockchain to allow tourists and visitors to receive personalized services based on their preferences and profiles. This enhances the overall tourism experience, such as faster check-ins, luggage tracking, and reliable reviews, making Jericho a more attractive destination.
4. Promotion of sustainable practices through using Blockchain to reward tourists and local residents for sustainable behaviors, such as conserving water or energy. This can be done through a cryptocurrency-based reward system, encouraging eco-friendly practices that align with Jericho's goals of promoting sustainable tourism.
5. Economic empowerment of local communities by using Blockchain to all local residents to gain by direct access to tourists and offering their products and services without intermediaries. This can help boost the local economy by encouraging the use of local cryptocurrencies and ensuring that economic benefits are distributed more equitably.

However, to successfully implement Blockchain in the agritourism sector, challenges such as the conceptual complexity of the technology, security concerns, etc. This might involve:

1. Provide targeted training sessions for tourism organizations, service providers, and local businesses to demystify blockchain technology. These programs should focus on the practical applications of blockchain, addressing its conceptual complexity and enhancing readiness for adoption.
2. Conduct workshops to educate tourists and residents on the benefits and use of blockchain within Smart

Tourism Destinations. This will help increase their understanding, comfort, and engagement with the technology.

3. Implement robust security protocols to protect against potential hacks, identity theft, and data breaches. This includes multi-layered encryption, regular security audits, and the use of advanced cybersecurity tools.
4. Develop systems to mitigate risks associated with the loss of private keys, misplacement of tokens, and safeguarding personal records. Possible solutions include the use of secure key management systems and user-friendly recovery processes.
5. Launch awareness campaigns to educate stakeholders about the importance of data security and privacy in blockchain transactions, focusing on the safe handling of private keys and personal data.
6. Foster collaborations between public entities, private sector stakeholders, and blockchain technology providers to co-develop solutions that address these challenges. This includes sharing resources, knowledge, and infrastructure to reduce costs and risks.
7. Start with pilot programs to test the blockchain technology in controlled environments before full-scale implementation. This allows for the identification and resolution of issues in a more manageable setting.
8. Encourage the development and adoption of blockchain technologies that are designed with sustainability in mind. This includes exploring green energy sources for blockchain operations and promoting practices that reduce the environmental impact.

2. Jericho and Al-Aghwar Governorate

2.1 Demographic and Socio-Economic Insights

2.1.1 Population

With a population of 56,246 persons (1.1% of total population in Palestine), Jericho and Al-Aghwar Governorate consists of 12 administrative localities Jericho city, Al Auja, Ein as sultan camp, Aqbat Jaber camp, Marj Na'ja, Az Zubeidat, Marj al Ghazal, Al Jiftlik, Fasayil, An Nuwei'ma, Ein ad Duyuk al Fauqa, and An-Nabi Musa). The major localities in terms of population size in year 2024 are: Jericho city (the only municipality in the governorate) with 23,522 persons, Aqbat Jaber Camp (10,081 persons), Al 'Auja (5,877 persons) and Al Jiftlik (3,488 persons) in addition to several other rural and camp areas. Based on the Palestine Central Bureau of Statistics (PCBS) data, based on locality, the population in the governorate are distributed as: 52 % living in urban area, 21 % in rural area, and 27 % in refugee camps (PCBS, 2021).

From gender perspective, population are distributed as 50.4% male and 49.6 % female. In addition, Jericho governorate consists of a youthful population with 37.2% of the population are between 0–14 years and ages between 15-64 years is about 59.5%. and only 3.3% are above 65 years (PCBS, 2019). Although,

youths can be seen as the main source of demographic dividend which drives economic growth in the governorate. However, this also denotes a high level of dependency ratio and a high potential for future population growth, which necessitates planning for future in terms of education, healthcare, and eventually employment, and a need to develop strategies to harness the potential future economic benefits of a youthful population, including vocational training, job creation, and entrepreneurship support. From social lens, the high ratio of youth adds more pressures on households and policy makers in terms of the need for more expenditure and budgets for basic needs and services, and necessitate the development of youth services such as recreational facilities, childcare services, and programs for youth engagement and development.

2.1.2 Area

The area of Jericho & AL Aghwar Governorate was estimated as 593 square kilometers in 2010 (around 10% of West Bank area) (PCBS, 2011). The Geopolitical divisions of Jericho Governorate according to Oslo II Interim Agreement (1995) as the following: Area 'A' 68.2 km², Area 'B' 0. 694 km², and Area 'C' 523.9 km² (ARIJ, 2011).85 % of the population live within area 'A', 5% within Area 'B', and 10 % within Area 'C'.

The total cultivated area for 2020/2021 was about 52780 dunums, distributed as 29103 dunum of Horticulture Trees, 22041 dunums of Vegetables, and 1635 dunum of Field Crops (PCBS and MoA, 2021). The ratio of the cultivated area to the total area is about 9%. While the ratio of cultivated area by settlers in the governorate is about 17%, which means the settlers cultivated area is double than the land cultivated by Palestinians. According to the PCBS, the total area of plant production in Jericho Governorate in the agricultural year 2007/2008 was 49,272 dunums, which means over the period from 2008 to 2020, there is an increase in the agricultural area of about 3508 dunums, the expansion in area attributed to the increase in Date Palm farming mainly Medjool.

2.1.3 Climate

Jericho Governorate has extremely hot and dry weather during summer, and moderate temperature during winter, which allow farmers to produce vegetables early when Europe for example is still under frozen. The hot temperature and dry air allow Jericho to be one of a very limited locations to produce Medjool Date Palm. Medjool dates require hot temperature and dry air (low relative humidity). Moreover, the moderate temperature during the winter encouraging the internal and external tourists to visit the city.

2.1.4 Natural resources and archeological sites

The archeological sites in Jericho Governorate includes but not limited to: Tell es-Sultan, Hishams Palace, Baptism site, Mount of Temptation Monastery, and The Russian Museum and the sycamore tree. The famous springs in Jericho governorate include: Tel es-Sultan Spring and Al-Auja spring. Palestinians are denied

from access to Dead Sea, Jordan River, Baptism site, and most of the agricultural areas and groundwater resources in the governorate. Seventeen Palestinian villages and localities are located in area “C”, which face isolated and cut off from each other due to the Israeli annexation plan to Jordan Valley. The annexation plan deprives the Palestinians from the sovereignty to the Dead Sea and its natural resources and minerals, and access to 51 km of its shoreline, besides deprived the Palestinians annually from their share (265 million m³) of fresh water in the lower Jordan River (Hardan, 2022).

2.2 Labor market characteristics

Based on the 2022 PCBS labour force survey, the unemployment rate in Jericho and Al-Aghwar was 9.5% (7.3% for male, and 16.3% for female), which is one of the lowest rates in the West Bank in general and in terms of male and female unemployment. This might suggest that Jericho has a relatively robust local economy with more ability for job creation mainly in agriculture, tourism, and small-scale industries. In fact, Jericho and Al-Aghwar is dominated by sectors (agriculture and local tourism) that are more resilient or less affected by economic downturns and the obstacles of Israeli occupation. Table 1 below shows that around 27% of governorate employment is in the agriculture sector, around 17% in commerce, hotels and restaurants, which indicates the agricultural and touristic nature of the local economy. However, despite the overall low unemployment rate, there is a need to ensure that economic opportunities are inclusive and reach all segments of the population, including women and youth.

Table 1: Percentage Distribution of Employed Individuals Aged 15 Years and Above for Jericho and Al-Aghwar by Sex, and Economic Activity, 2021

Sex	Economic Activity						Total
	Agriculture, Hunting & Fishing	Mining, Quarrying & Manufacturing	Construction	Commerce, Hotels & Restaurants	Transportation, Storage & Communication	Services & Other Branches	
Males	26.6	17.3	8.3	17.1	6.1	24.6	100
Females	27	14.1	-	10.8	3.1	45	100
Both Sexes	26.7	16.6	6.5	15.7	5.4	29.1	100

Source: Palestinian Central Bureau of Statistics, 2022. Palestinian Labour Force Survey.

2.3 Agricultural sector in Jericho and Al-Aghwar Governorate

Agriculture is the main activity in the governorate, as most of the population depends on it, whether directly or indirectly. It has long been considered the fruit and vegetable basket of Palestine, along with Tubas and the Northern Jordan Valley. The moderate climate in winter, provides the governorate many agricultural advantages in terms of unprotected cultivation methods, early production where crops in the region mature at least two months earlier than their counterparts in the other West Bank.

2.3.1 Planted Area

The total planted area in Jericho and Al-Aghwar governorate is 52,780 dunum (table 2). Horticulture trees, vegetables and field crops are planted on 29103, 22041, and 1635 dunum respectively. Although the cultivate areas in the governorate doesn't exceed 4.8% of total planted area in Palestine, but the available optimum environmental conditions over the year mainly the temperature, provide the farmers in the governorate to grow the land during the whole season with diverse crops. Consequently, the profit/ area is magnified.

Table 2: Cultivated Area (Dunum) of Field Crops, Vegetables and Tree Horticulture in Palestine, West Bank and Jericho and Al-Aghwar governorate (2020/2021)

Region	Total	Horticulture trees	Vegetables	Field Crops
Palestine	1,096,320	676,829	202,285	217,205
West Bank	979,751	640,861	140,793	198,096
Jericho and Al-Aghwar governorate	52,780	29,103	22,041	1,635
Percentage of cultivated areas in Jericho governorate to total cultivate areas in Palestine	4.8%	4.3%	10.9%	0.75%

Source: agricultural census (PCBS and MoA, 2021),

The cultivated area in Jericho and Al-Aghwar governorate with trees is 29103 dunums (PCBS and MoA, 2021), Date palm is the predominant horticulture tree in the governorate with 375,482 trees grown on 27205 dunums representing around 94% %of the total date palm's cultivated area in Palestine and 93.47% of cultivated areas with trees in Jericho and Al-Aghwar governorate.

Cultivated area with date palm in the governorate increased sharply over last twenty years (table 3). Low to moderate irrigation requirement (800-1300 m3) in compare with other trees such as banana and citrus, high economic returns from growing date palm trees, as well, the dominant weather in the governorate (high temperature combined with low relative humidity) fitted growing Mejdool, the high-quality cultivar and most attractive date palm fruit in global markets; all these factors encouraged farmers in the governorate to grow date palm trees.

Table 3: the production and cultivated area with date palm in Jericho an Al-Aghwar governorate during (2005-2023).

Production (ton)	Area (dunums)	Year
90	1100	2005
100	1400	2006
110	1650	2007
450	2350	2008
776	3000	2009
1000	4700	2010
1400	7000	2011
2000	10000	2012
2970	12000	2013

4000	14000	2014
4500	15000	2015
5800	17000	2016
7000	18000	2017
9500	21500	2018
10980	23000	2019
12516	25278	2020
11866	23670	2021
14497	23718	2022
17441	24333	2023

In 2022/2023, date palm fruit production was 17,441 tons; around 10,000 tons were exported and the rest used for domesticated consumption. Export for date palm fruits increased sharply in last period (Figure 1), in 2020, it was 4,500 tons and in 2023 was 10,000 tons. The high external markets demand for Medjool fruits, one of many reasons which encouraged farmers to grow date palm trees in the governorate



Figure 1: date palm fruit production and export during 2020-2023 in Jericho and Al-Aghwar governorate

For other most important growing fruit trees in the governorate, Banana, Grape and Fig are the predominant fruit trees in Jericho and Al-Aghwar Governorate with only 755, 336 and 327 Dunums respectively. Most of grape orchards are seedless cultivars and grown under greenhouses or nets. Banana orchards are very old and characterized by low productivity and profitability. Main reasons for banana orchards shrinking

is the high water demand during growing season combined with low price of fruits and difficulties with marketing. Fig is still new introduced crops into the governorate

According to agricultural census (PCBS and MoA, 2021), more than 22,021 dunums planted with vegetables, which represents around 10% of total cultivated area with vegetables in Palestine (202,285 dunums) (Table 4). In more details, out of 9,266.79 dunums cultivated with maize in Palestine, 3,255 dunum cultivated in Jericho and Al-Aghwar governorate. (35.1%). The cultivated area with Jew melloes in the governorate is 1,226.22 dunums, representing 21.4% of 5720 dunums grown with Jew Mallow in Palestine. Squash, eggplant and water melon are grown on large area in the governorate with 3198, 3224 and 1432 dunums, respectively.

Table 4: Area (Dunum) of selected vegetables in Palestine, west bank and Jericho & Al-Aghwar governorate 2020/2021

Region	Water melon	Melon	Squash	Okra	Cucumber	Egg plant	Tomato	Jews Mallow	Cauliflower	Faba bean	Maize
Palestine	5125	3390	20562	4910	21516	10976	15457	5720	8769	3766	9,266
West Bank	2340	2006	16636	3059	18508	7600	8459	4525	7549	3161	7135
Jericho & Al-Aghwar governorate	1432	503	3198	533	1663	3224	480	1226	1380	844	3255
Percentage of cultivated areas in Jericho governorate to total cultivate areas in Palestine	27.9%	14.8%	15.5%	10.8%	7.7%	29.3%	3.1%	21.4%	15.7%	22.4%	35.1%

According to agricultural census (PCBS and MoA, 2021), the total area of agricultural holdings which is bigger than 50 dunum was 44410 dunums representing approximately 94.5% of the total agricultural holdings in the Jericho and Al-Aghwar governorate (55053 dunum). The holdings which is bigger than 80 dunums was 38,406 dunum. The average of agricultural holding in Jericho and Al-Aghwar governorate is 27.2 dunum which is the biggest agricultural holding size in Palestine while the national agricultural holding size is only 8.6 dunum. The large agricultural holdings in the governorate is encourage the investment, increase the profitability and decrease the cost of required infrastructure and agricultural inputs such as, fertilizers, seeds, herbicides, and pesticides. Large agricultural holdings in the governorate increase investment opportunity and create an attractive environment for agribusiness sector.

In the last two decades, Banana cultivation in Jericho and Al-Aghwar governorate has suffering from shortage of irrigation water, water salinity, land fragmentation, and urban sprawl, which negatively affected on its cultivated area. However, restoration part of the cultivation area could happen by the following two ways. (1) providing sufficient irrigation water amount with affordable price which might happen either by water harvesting projects or transfer the treated water from Al-Bireh waste water treatment plant to

Nwemieh area (about 23 km the water flow by gravity, and (2) Cultivation Banana under shade net house which could reduce the required evapotranspiration and irrigation amount by 30 – 35%. It is worth to mention that each dunum of Banana requires of about 3000 m³ per year, while under shade net house, it requires of about 1800 – 2000 m³ per year which depends on location and climatic factors. Al-Bireh waste water treatment plant produce daily of about 5000 m³ (Tertiary treatment) which is sufficient to cultivate of about 950 dunums of Banana under shade net house system. The new cultivated area is expected to generate around 300 jobs.

Out of 52,780 planted dunums in the governorate, more than 24749 dunum (46.9%) is using artesian wells as a main source for irrigation. As well, 12,475 dunums (23.6%) are irrigated by tanks, ponds and wells.

In terms of animal production, Jericho and Al-Aghwar Governorate, the Percentage of animal numbers to the total number in Palestine is too low and don't exceed 11.2% and 6.75% for goat, and sheep respectively (table 5). The number of cattle, goat, and sheep were 1852, 52103, and 26878 head in Jericho and Al-Aghwar governorate, respectively. More than 2600 of beehives are available and only 62 camels were growing in the governorate. All these animals are husbandry mainly in Jericho and Al-Aghwar governorate for milk production.

Table 5: number of cattle, sheep, goat, camel heads, and beehives are available in Jericho and Al-Aghwar governorate

Region	Cattle	Sheep	goat	camel	beehives
Palestine	67,760	771,168	239,966	1,547	64,360
West Bank	53,182	713,271	231,328	998	47,595
Jericho and Al-Aghwar governorate	1,852	52,103	26,878	62	2,602
Percentage of cultivated areas in Jericho governorate to total cultivate areas in Palestine	2.7%	6.75%	11.2%	4%	4.04%

Source: agricultural census (PCBS and MoA, 2021)

2.3.2 Challenges face the agriculture sector in the governorate

Generally, the Contribution of agriculture sector to GDP in Palestine is declining over years. For example, in 2020 GDP was 7.1% declined into 6.3% in 2022. Although agricultural sector is the main economic activity in Jericho and Al-Aghwar Governorate, the sector is still facing several obstacles hindering it to contribute significantly to improve the livelihood and economic or the people in the governorate. For example, the productivity of date palm (tons/Hectare/year) in Palestine was 5 while it was in Israel 15. The same trend for Banana which was 32.5 and 65 in Palestine and Israel, respectively. The main obstacles are:

First: Israeli occupation, its policies and practices

Jericho and Al-Aghwar Governorate is considered an important strategic region from a geopolitical and

economic perspective. Together with Tubas Governorate, they constitute the largest part of the Palestinian Jordan Valley, which is distinguished by its characteristics related to agricultural production. Therefore, since 1967, the region has been a target for Israeli colonial ambitions in terms of confiscating lands from the indigenous population and consolidating them.

Israeli occupation imposes forceful control over natural resources, the most important of which are land and water, confiscating and uprooting trees, in addition to restricting movement through military checkpoints that constitute an obstacle to farmers' access to their farms and imposing restrictions on freedom of movement, and trade of products to local and abroad markets.

There is 17 illegal settlements in Jericho Governorate (PCSB, 2023), 6 settlement outposts, and 19 military camps, bases, and training areas for the Israeli army. According to the data from the Wall and Settlement Resistance Commission, Israel confiscated more than 12,000 dunums of Jericho governorate area for colonial expansion: 7,863 dunums for settlements, 267 dunums for settlement outposts, 3,962 dunums for camps, military bases, and training areas. In addition to around 247,864 dunums (42%) of closed military areas. which hinders the Palestinian residents who own the lands surrounding the settlements from accessing and exploiting them.

Second: Limited natural resources

a. Farmland

Despite the large area of Jericho Governorate, which is estimated at approximately 600 thousand dunums and represents approximately 10% of West Bank, the total exploited areas do not exceed 10%, due to the arbitrary measures of the occupation, which controls most of the area of the governorate and impedes farmers' access. According to Oslo agreement the classification, the percentage of agricultural lands in the governorate which categorized in Areas A, B, and C were 11%, 0.1% and 88.9% respectively.

Currently, the Israeli settlers are cultivating more than 100,000 dunum in Jordan Valley and using of about 116 million cubic meter per year. Also, around 50 thousand dunums of cultivated crops (mainly date palm trees, and vegetables) in the governorate are irrigated crops, which represents about 40-45% of the irrigated agricultural area in the West Bank. However, the governorate suffers from limited accessibility to water resources, where Israeli occupation controls and prevents the exploitation and development of water resources in the governorate. In addition, Israeli occupation deprives the Palestinian from access and benefiting from 265 - 300 million cubic meter of water flowing in the lower Jordan River.

Here are the most important challenges in the Governorate regarding to agricultural sector:

- Confiscation of lands and prevents farmers and landowners from its exploitation for agriculture and investments.
- The occupation obstructs the rehabilitation and construction of agricultural roads and Infrastructure

such as electricity and water facilities.

- High costs of reclaiming and rehabilitating unsuitable lands, especially saline lands.

b. Water resources:

There are two main sources of water in Jericho Governorate: springs and underground wells, as agriculture in the region depends entirely on irrigation.

Springs: Jericho and the Jordan Valley are fed by a number of main springs distributed over various regions. In total there are seven springs distributed along the governorate with approximately 25 m³ million as drainage rate/year.

Ground wells: There are about 130 ground wells in Jericho and Al-Aghwar governorate, most of which were dug in the 1950s and 1960s for irrigation and household purposes. Their depth ranges between 50 to 100 meters and their production capacity is small, and only 86 of them are operational wells.

The most important challenges in Jericho and Al-Aghwar Governorate with regard to agricultural water sources are the following factors:

- The decrease in the discharge of some springs during the summer period, especially in years of drought, as well as the drying up of some springs, especially Ain al-Auja, as the spring has repeatedly dried up in recent years.
- The groundwater level decreases during periods of drought, which affects the wells and the amount they pump.
- Exploiting agricultural water for drinking and domestic use, and this makes the available quantity decrease with the increase in population. (Ain Al-Sultan-Jericho city).
- The occupation authorities do not allow the digging of new agricultural wells or changing their location, as well as determining the amount of pumping into these wells using meters that do not allow the quantity to be exceeded.
- Water pollution due to the leakage of wastewater from neighboring Israeli settlements into water basins.
- The significant increase in salinity and sulfur levels in some groundwater wells in the governorate, causing them to limit certain types of agricultural crops and reduce productivity.

Third: Internal challenges

Besides, obstacles due to Israeli occupation, agricultural sector in Al-Aghwar governorate has several challenges that prevent it to realize its role in local sustain development process. The following paragraphs summarized the most important internal challenges:

- The Jericho central market suffers from marketing bottlenecks during the production season, it is a small-scale market that does not accommodate large quantities of production. Marketing of products to central

Source: https://www.pcbs.gov.ps/statisticsIndicatorsTables.aspx?lang=ar&table_id=3483

markets in other governorates, is subject to military checkpoints and security conditions in the West Bank. Farmers may also sell directly from the land, and this advantage is limited to Area C and the lands adjacent to Line 90, which is describes by seasonality and irregularity.

- Method of selling in central markets: Production is sold in central markets in Palestinian cities by public auction, and this makes prices fluctuate daily. They increase with the increase in the number of merchants and decrease sharply if the merchants do not arrive.
- Israeli control over external crossings: not allowing goods to be transported to and from Palestine and all products are subject to Israeli laws and security procedures, which causes delays in transporting shipments and increases the cost for Palestinian exporters.
- Transportation: This problem has become clear during the last four years, as the production of the Jordan Valley region suffers from difficulty reaching the central markets in the major cities due to the military barriers that separate the Jordan Valley from the rest of the governorates, as trucks are prevented from moving under security pretexts. The Israeli authorities have gone so far as to interfere in preventing the movement of some crops at checkpoints between cities, as happened with the crops of cucumber, okra, and zucchini. The cost of transportation increases because of the trucks taking bumpy detours and waiting hours at the checkpoints. This also increases quality problems, especially for fresh vegetables and fruits, which are transported in non-refrigerated trucks.
- The lack of refrigerators to store surplus production, even for a few days, in local markets. This sometimes leads to the goods being destroyed or returned to farms after being exposed to temperatures for long hours.
- No agricultural factories to absorb the surplus production in Jordan Valley area.
- Competition from Israeli and settlements products.
- Access to production inputs, surveyed farmers faced difficulties or were unable to access production inputs, such as fertilizers, seeds or pesticides. This is either due to barriers, or due to its lack of availability in the markets, which depend on Israeli suppliers. around 57% of farmers from Jericho and AL-Aghwar

2.4 Challenges face the agriculture sector in the governorate

2.4.1 Tourism Sector in Jericho and Jordan Valley

The tourism sector in Palestine is continuously growing, in the presence of all the significant elements that guarantee economic success, and prosperity. The sector can attract foreign and domestic investments and can appeal to investors with its diversity of the cultural, and religious diversity, as well as environmental and natural wealth. Palestine's natural geography is composed of coastal and mountainous landscapes. The oldest city on earth, Jericho, lies within Palestine, as well as the Dead Sea, with its wealth of minerals and the possibility it holds for investors in the tourism sector, as it is still underdeveloped in terms of the availability of health spas and recreational facilities. Palestine is home to the three major religions and is

rich with Islamic and Christian holy momentums that attract a huge number of tourists each year².

2.4.2 Economic Contribution

According to the Palestinian Central Bureau of Statistics (PCBS), the contribution of Palestinian tourism sector (domestic and inbound tourism) to the GDP (at current prices) decreased from 8.1% in 2009 to 5.1% in 2022 (see Table 6). This decline is attributed to many factors, mainly the Covid-19 pandemic 2020-2022 (the contribution of domestic tourism did not exceed 0.9% of GDP in 2022), and the Israeli restrictions on domestic tourism through checkpoints, restriction on area C, closures and incursions of the Palestinian cities, in addition to the financial crises that the Palestinian government face due to the Israeli continuous cuts of the Palestinian clearance funds, which hinders the Palestinian policy makers to develop the tourism sector and funds the national plans accordingly.

(Table 6: Contribution of tourism sector to the GDP in Palestine (current prices)

Year	GDP at current prices (Million USD)	Contribution of consumption on inbound tourism to the GDP at current prices (%)	Contribution of expenditure on domestic tourism to the GDP at (%) current prices	Contribution of Palestinian tourism sector (domestic and inbound tourism) to the GDP at (%) current prices
2009	8,086	7.2	0.9	8.1
2012	12,208	5.9	0.9	6.8
2014	13,990	6.6	0.8	7.4
2016	15,405	5.9	0.8	6.7
2017	16,128	6.6	1	7.6
2018	16,277	6.9	1	7.9
2019	17,134	7.6	0.9	8.6
2020	15,532	1.7	0.3	2
2021	18,109	3.2	0.9	4
2022	19,166	4.2	0.9	5.1

2.4.3 Domestic and Inbound Tourism

The Palestinian tourism sector consists of:

- Restaurants & Beverages
- Manufacture and sale of handicraft products
- Creative, arts and entertainment activities
- Regular passenger transportation by long-distance buses and car rental

² <http://www.pipa.ps/page.php?id=1aa82by1746987Y1aa82b>

- Travel agencies, tour operators and reservation services
- Accommodation and similar activities
- Other activities

The expenses of the restaurant and shopping activities constitute the largest percentage in terms of contribution to domestic tourism consumption, representing 35.8% and 32.9% respectively, in 2022. The substantial spending on restaurants highlights the importance of gastronomic tourism and local cuisine which represent significant attraction, and dining experiences and form a core part of the tourism offering. Also, the prominence of restaurant expenses underscores the growth and potential of the hospitality industry, which can be further developed to enhance the tourism experience.

From an agritourism perspective, particularly in Jericho city, the fact that expenses for restaurants and shopping activities constitute the largest percentage of domestic tourism consumption highlights some interesting points:

1. The combination of dining and shopping within the agritourism sector provides diversified income streams for local communities, enhancing economic resilience and reducing dependency on a single source of revenue.
2. The high expenditure on restaurants and shopping indicates that these sectors are major revenue generators and highly valued by tourists within the agritourism framework including farm-to-table dining experiences and the sale of local agricultural products. By spending on farm-to-table restaurants and local markets, tourists directly support local farmers and producers, which promotes sustainable agricultural practices and economic stability in rural areas.
3. Jericho, known for its agricultural produce, offers farm-to-table dining experiences that attract tourists, which means that visitors are eager to experience local cuisine made from fresh, locally sourced ingredients, and based on environmentally friendly practices such as organic farming.
4. Agritourism can be integrated with local food markets where tourists can purchase fresh produce, thus enhancing the shopping experience including the purchases of local agricultural products and handicrafts made from local materials.
5. Agritourism often involves educational tours of farms and agricultural sites, where tourists can learn about local farming practices, sustainability, and the history of agriculture in the region.
6. Jericho's markets and shops offer unique products like locally made handicrafts, organic produce, and traditional food items, making shopping a significant part of the tourist experience.
7. Agritourism in Jericho can be complemented by other tourism activities such as visits to historical sites, natural reserves, and cultural festivals, creating a well-rounded visitor experience. Engaging local communities in agritourism ensures that the economic benefits are distributed widely, fostering community development and empowerment.

Table 7: Domestic Tourism Consumption in Palestine by Item and Categories of Visitors, 2021-2022 (in thousand USD)

	Overnight stay visitors		Same-day visitors		Total	
Item	2021	2022	2021	2022	2021	2022
Hotel & Accommodation Services	9,146	15,231	0	0	9,146	15,231
Food & Beverage Serving Services	3,822	6,826	81,581	84,084	85,403	90,909
Shopping expenditures	3,298	5,725	4,771	4,918	8,069	10,643
Passenger transport and communication services	2,356	4,051	15,918	14,915	18,274	18,966
Other expenses	1,652	2,868	32,265	32,090	33,917	34,958
Total	20,274	34,700	134,536	136,006	154,810	170,706

Source: https://www.pcbs.gov.ps/site/lang__ar/1142/default.aspx

It is important to refer that inbound tourism represents 82.3% of the total domestic tourism consumption (around \$798.1 million), while domestic tourism constitutes 17.7% (\$170.7 million) of the total consumption (see tables 7 and 8).

Table 8: Inbound Tourism Consumption in Palestine by Item and Categories of Visitors, 2021-2022 (in thousand dollars)

	Overnight stay visitors		Same-day visitors		Total	
Item	2021	2022	2021	2022	2021	2022
Hotel & Accommodation Services	13,828	67,999	0	0	13,828	67,999
Food & Beverage Serving Services	190,922	139,799	71,712	116,020	262,634	255,818
Shopping expenditures	102,553	155,138	68,000	152,529	170,553	307,666
Passenger transport and communication services	62,339	77,821	0	0	62,339	77,821
Other expenses	43,345	49,352	25,096	39,462	68,441	88,814
Total	412,986	490,108	164,809	308,010	577,795	798,118

Source: https://www.pcbs.gov.ps/site/lang__ar/1142/default.aspx

The significant proportion of inbound tourism suggests that the tourism sector in Palestine is heavily reliant on international visitors for revenue. This dependency means that changes in international travel patterns, geopolitical situations, or global economic conditions can greatly impact the Palestinian tourism industry. While the relatively small share of domestic tourism consumption (17.7%) may refer to the fact that domestic tourism is underdeveloped. This could be due to a variety of factors such as low investments in domestic tourism in terms of infrastructure and touristic services, lack of awareness about local attractions, and Israeli constraints that limit mobility within the West Bank.

Therefore, there is a need for strategic policies that promote domestic tourism. This could involve developing affordable and accessible tourism products that cater to local tastes and preferences. Improving infrastructure, safety, and marketing efforts targeting local tourists could boost domestic tourism. Also, awareness campaigns by ministry of tourism and other stakeholders highlighting the cultural and natural attractions within Palestine could also encourage locals to explore their own country.

2.4.4 Number of Guests in Local Hotels

It can be noted that tourism from Europe constituted the highest percentage (47%) of tourism activities, in terms of the number of tourists in the West Bank hotels in 2019, which sharply declined to 3.3% in 2022 due to the Covid-19 Pandemic. In terms of the number of guests in local hotels, the decreased from international tourism was partially offset by the increasing in tourists from the Arab Palestinian who live inside Palestine 1948, which increased from 11.4% in 2019 to 44% for the year 2022, and by the increasing in domestic tourism from 7.9% to 28.5% between 2019 and 2022 (See Table 9).

Table 9: Number Guests in hotels in the West Bank, by Nationality and Year

	Year	Nationality								Total
		Palestine	Arab countries	Israel	Asia	North America	Europe	Africa	Australia and New Zealand	
Number	2019	58897	6550	85090	146163	77655	351412	16961	4183	746,911
Ratio		7.90%	0.90%	11.40%	19.60%	10.40%	47.00%	2.30%	0.60%	100%
Number	2021	57,835	417	119,253	708	623	1,796	—	—	180,632
Ratio		32.00%	0.20%	66.00%	0.40%	0.30%	1.00%	—	—	100%
Number	2022	97,160	11,263	115,761	47,845	57,278	11,375	340	53	341,075
Ratio		28.50%	3.30%	33.90%	14.00%	16.80%	3.30%	0.10%	0.00%	100%

Source: https://www.pcbs.gov.ps/statisticsIndicatorsTables.aspx?lang=ar&table_id=3483

It is important to mention that many foreign tourists come to Jericho and Bethlehem during the day as a stop on a wider tour led by guides with Israeli licenses³. Thus, to encourage them to extend their stay in Jericho, it is important to develop a strategy that focuses on enhancing the overall tourist experience, improving infrastructure, and promoting the unique attractions of Jericho:

1. Invest in building and upgrading accommodation facilities ranging from luxury hotels to affordable guesthouses, ensuring they meet international standards.
2. Promote eco-friendly accommodations and homestays that offer unique, immersive experiences for tourists interested in sustainable travel.
3. Organize evening cultural events, festivals, and performances that showcase local music, dance, and traditions.

³ <https://2u.pw/LzZvceSX>

4. Develop a vibrant dining and nightlife scene with local restaurants, cafes, and entertainment venues that offer tourists enjoyable activities after daytime sightseeing.
5. Run marketing campaigns targeting international tourists, highlighting the unique experiences and attractions in Jericho that warrant a longer stay.
6. Improve the online presence of Jericho's tourism offerings through a dedicated website and active social media channels. Provide comprehensive information about attractions, accommodations, and activities.
7. Develop reliable and tourist-friendly local transportation options, including shuttle services between key attractions and accommodation.
8. Establish well-staffed tourist information centers that provide maps, guides, and assistance to visitors. Ensure multilingual support to cater to international tourists.
9. Encourage partnerships between local businesses to create bundled experiences (e.g., accommodation and activity packages) that make staying in Jericho more attractive.
10. Host workshops and demonstrations on traditional crafts, organic farming, and sustainable agricultural practices.

In terms of agritourism:

1. Enhance the agritourism experiences, by developing farm tours, agricultural workshops, and farm-to-table dining experiences that highlight the local produce and traditional farming methods of Jericho.
2. Develop farm stay accommodations where tourists can experience life on a farm. This can include comfortable lodging, home-cooked meals, and participation in daily farm activities.
3. Provide opportunities for tourists to participate in farming activities such as planting, harvesting, and cooking local dishes using farm-fresh ingredients.
4. Develop restaurants or dining experiences on farms where tourists can enjoy meals made with fresh, locally sourced ingredients. Highlight traditional Palestinian cuisine.
5. Organize seasonal festivals celebrating the harvest, featuring local food, music, crafts, and cultural performances.
6. Develop bike and walking trails that connect agritourism sites, allowing tourists to explore the countryside at a leisurely pace.
7. Partner with local farmers and producers to develop and offer agritourism activities. Ensure that the benefits of tourism are shared with the local community.
8. Provide training and support for local farmers to enhance their capacity to host tourists and deliver high-quality experiences.
9. Integrate cultural elements such as traditional music, dance (Dabka), and crafts into agritourism activities, offering tourists a rich and immersive experience.

2.4.5 Palestinians' Households demand on Local and International Tourism

It is interesting to track the percentage of households in the West Bank who carried out domestic and foreign trips over the period from 2005 to 2022, It is clear that the percentage of domestic and foreign trips declined at households' level in the West Bank; drops in domestic trips was sharper than that of foreign trips. Between 2009 and 2022, domestic trips decreased from 33.9% to 7.9%, compared to from 21.9% to 13.3% for international trips in the same period (see Table 10).

Households in the West Bank may perceive foreign trips as offering more value or unique experiences compared to domestic options. This could suggest a need for better marketing and enhancement of local agritourism attractions. Poor infrastructure or accessibility issues within the West Bank could deter domestic travel.

By implementing a multifaceted strategy that focuses on promotion, infrastructure, economic incentives, community involvement, safety, and innovative experiences, it is possible to reverse the declining trend in domestic trips in the West Bank. Promoting local agritourism can provide economic benefits, preserve cultural heritage, and create a sustainable tourism model that benefits both residents and visitors. However, this requires:

1. Provide training programs for locals in hospitality, tourism management, and marketing to improve service quality and visitor experience.
2. Real investments in agritourism, mainly in cities like Jericho and Hebron.
3. Marketing campaigns that highlight the unique agritourism opportunities in the West Bank. Use social media, local media, and influencers to reach a broad audience.
4. Organize seasonal festivals that celebrate local agriculture, food, and culture. These can attract tourists and provide a festive atmosphere.
5. Offer interactive and educational activities like animal feeding, plant cultivation workshops, and nature walks.
6. Establish support networks for agritourism entrepreneurs, offering guidance, resources, and networking opportunities.

Table 10: Percentage Distribution of the Households by Conducted of Domestic and Outbound Trips

Domestic trips (%)	Outbound trips (%)	Year
27.7	-	2005
35.5	-	2006
27.8	-	2008
33.9	21.9	2009
34.2	16.4	2010
20.1	13.3	2012
32.5	21.6	2014
12.8	15.2	2016
19.8	17.6	2018
7.9	13.3	2022

Spending on outbound tourism had increased from \$ 11.6 million in 2021 to \$ 94.3 million in 2022 (see table 11 below). On average, in 2022, Palestinian household spent \$127 on domestic tourism compared with \$ 1545 for foreign trips.

Table 11: Total Consumption in the West Bank on Outbound Tourism by Item, 2021-2022 (in USD 1000)

Item	2021	2022
Hotel & Accommodation Services	842	11,276
Food & Beverage Serving Services	1,239	14,769
Shopping expenditures	1,716	32,310
Passenger transport and communication services	3,333	21,920
Other expenses	4,508	14,018
Total	11,638	94,292

Source: https://www.pcbs.gov.ps/site/lang__ar/1142/default.aspx

2.4.6 Availability and Satisfaction about Services in the Touristic Areas in the West Bank

The PCBS data for the years 2018 and 2022 indicated that 84.3% and 93.8% of Palestinian households respectively faced the problem of lack of tourism guides, while 80.1% and 88.8% of them faced the problem of lack of hotels (see Table 12).

Table 12: Percentage Distribution of the Households Answers about the Availability of Services in the Visited Places in the Palestinian Territory by Type of Service, 2018 and 2022

Year	Availability	Restaurants & Parks	Coffee shops	Swimming Pools	Hotels	Shops	Health facilities	Tourism Guide
2018	available	84.6	67.2	42.7	12.7	68.3	85.9	7.6
	unavailable	15	30.3	53	80.1	30.7	13	84.3
	I don't know	0.4	2.6	4.3	7.3	1	1.2	8.2
2022	available	79.2	57.4	49.7	5.8	61.7	94.1	2.1
	unavailable	20.5	40.1	48	88.8	37.2	5.5	93.8
	I don't know	0.3	2.5	2.3	5.4	1.1	0.4	4.1

Source: Palestinian Central Bureau of Statistics, Domestic and Foreign Tourism Survey.

As for the level of satisfaction with the services available in the visited places, the level of satisfaction about the tourism guides increased from 34.8% in 2018 to 79.6% in 2022. Similarly, satisfaction about restaurant and parks services increased from 75.2% to 80.2% for 2018 and 2022. The highest rate of dissatisfaction was directed to health facilities (See table 13).

Table 13: Percentage Distribution of the Households Answers about the level of Satisfaction of the Services Available in the Visited Places in the Palestinian Territory by Type of Service, 2018 and 2022

Year	Level of service satisfaction	Service						
		Restaurants & Parks	Coffee shops	Swimming Pools	Hotels	Shops	Health facilities	Tourism Guide
2018	Very good	27.9	8.2	21.8	5.8	8.2	7.1	13.8
	Good	47.3	37.1	42.4	19.4	49.6	25.5	21
	Acceptable	6.3	3	8.4	1.7	14.5	24.7	4.4
	bad	1	0.2	1.2	0	8.9	13.3	0.4
	Very bad	0.4	0.6	0.6	0	2.8	10.1	0.5
	I don't know	17.2	50.8	25.5	73.2	15.9	19.4	59.9

2022	Very good	41	11	20.9	8.3	8.2	9.7	14.2
	Good	39.2	35.4	30.2	0	42.4	31.2	65.4
	Acceptable	4.5	6.4	4.7	0	18.1	24.5	0
	bad	0.3	1.4	1.2	0	4.1	14.1	0
	Very bad	0.4	0.5	0.3	0	1.1	7.2	0
	I don't know	14.6	45.3	42.7	91.7	26.1	13.3	20.4

Source: Palestinian Central Bureau of Statistics, Domestic and Foreign Tourism Survey.

2.4.7 The main indicators and touristic locations in Jericho and Al-Aghwar

Jericho and Al-Aghwar governorate have a mild climate in winter, making them a preferred winter destination for domestic and foreign tourism. The governorate is famous for its diversity of touristic locations, which includes:

- Religious archaeological tourism: such as Hisham Palace, Monastery of the Temptation, Wadi al-Qelt, Al-Maghtas, Deir Hijleh, the Coptic Church, the Russian Church, the Greek Church, the Sycamore Tree, and Tell Al-Sultan.
- Medical tourism: It is concentrated in the Dead Sea region, where clay soils with healing properties are rich in mineral salts.
- Ecotourism: The region is characterized by the availability of water springs, the fertility of its soil, and plant and animal biodiversity, in addition to being an agricultural area famous to produce many crops, especially dates palm, bananas, citrus fruits and field crops.

Official statistics indicate that Jericho and the Jordan Valley governorate was the second tourist destination for domestic tourism after Nablus governorate, which grew from 22.4% in 2008 to 29% in 2022 (see Table 14). Also, the governorate ranked second with 30% of inbound tourism, after Bethlehem, which received 35%.⁴

Table 14: Distribution of Households Carrying Out Local Trips to Jericho and Al-Aghwar (%)

Trip Destination	Year							
	2008	2009	2010	2012	2014	2016	2018	2022
Jericho and Al-Aghwar	22.40%	26.60%	19.90%	13.80%	11.20%	14.80%	27.10%	29.00%

Source: Palestinian Central Bureau of Statistics, Local and Foreign Tourism Survey 2023.

According to the Oslo Accords, the Jericho and Al-Aghwar governorates are divided into areas A, B and C in the following order (Palestinian Central Bureau of Statistics, 2007). This division deprives Palestinian

institutions of implementing their regulatory and developmental plans for many religious and environmental tourism facilities which are under the Israeli occupation administrative and security jurisdiction.

2.4.8 Ecotourism in Jericho and Jordan Valley

According to the International Ecotourism Society⁵, ecotourism can be defined as “responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education”. Thus, it is considered a type of tourism that focuses on visiting and preserving natural areas, while respecting the local culture and contributing to the well-being of the local communities. Ecotourism aims to strike a balance between nature exploration and environmental conservation, and to promote sustainable development. This type of tourism includes many activities such as bird watching, nature walks, learning about ecosystems and local cultures, etc.

In Palestine, we find many elements that push towards the growth of agritourism, namely Palestine is a global destination for religious tourism for Muslims and Christians, in addition to the tourist attractions which spread in geographical areas with great biodiversity, both in terms of landscape and climate, or in terms of the planting and animal environment, which can be exploited in the process of an organic link between religious and agritourism, especially in light of the growing global interest by tourists in agri- and ecotourism.

There is no doubt that the governorate of Jericho and Al-Aghwar enjoys a climatic, geographical, environmental and religious diversity that makes its pristine environment a tourist destination that can be highly developed and exploited in order to revive the economic environment of the governorate with all forms of domestic and foreign tourism. The most prominent ecotourism attractions and locations in Jericho and the Jordan Valley includes:

- ✓ Dead Sea: It is characterized by its mild climate in winter, the distinctive natural landscape, the proximity of natural springs and waterways to it, in addition to its therapeutic clay soil.
- ✓ Monastery of the Temptation (Mount Qorntal), which is of religious importance to the Christians, and has a distinctive natural view of the Jordan Valley. At the top of the mountain there is a monastery carved in the rock, and it contains the cave in which Jesus fasted for forty days, and it is reached through suspended air carts.
- ✓ Wadi al-Qelt: It is a natural slope between the neighboring plateaus, and it is made up of high rock walls that extend for 45 kilometers between Jericho and Jerusalem , the narrow and rugged road that runs along the valley was once the main road of the city of Jericho but tourists visiting monastery of St. George.
- ✓ Ain Al-Auja: One of the beautiful natural areas in the vicinity of Jericho and its waters flow throughout the year, as it comes from the mountains of Jerusalem, Hebron and Bethlehem, and flows until it feeds the springs of water extending in the governorate of Jericho and the Jordan Valley, which is the lowest point in the world. The area has many wild plants and birds.
- ✓ Ain al-Duyuk: It is a spring, located west of Jericho, and is characterized by its biological diversity of plants and animals.
- ✓ Ain al-Nuweima: A permanent spring located west of Jericho, famous for its banana plantations, biodiversity, and diverse geography with rocks and valleys.
- ✓ Ain Shousa: A permanent spring located to the west of the city of Jericho, it is a spring rich in migratory

and resident bird species, where deer abound, and is characterized by rocks and natural valleys, and its views that help meditation.

- ✓ Ain al-Sultan: Located to the west of the city of Jericho opposite Tel al-Sultan, it is one of the city's richest springs with fresh water, providing the residents of Jericho and some neighboring areas with drinking water and water necessary to irrigate crops. It is accessible to many species of migratory and resident birds and abounds in wild plants and tall trees with scenic views. Al Ain is also famous for growing bananas, citrus fruits and vegetables.
- ✓ Ain al-Fashakha: Located south of the city of Jericho near the Dead Sea, around which multiple types of wild plants grow, frequented by migratory birds in abundance, and their waters flow into the Dead Sea.
- ✓ Ain Hijleh: It is located to the east of the city of Jericho, and it is believed that the Canaanite village of Hajleh was based on the site of Al-Ain, and some attribute the name to the large number of partridges in it.
- ✓ Ein Fasayel: Located to the north of the city of Bethlehem in the lands of the village of Fasayel, it is considered a natural protected area rich in wild animals, migratory and resident birds and wild plants. Water spring continues throughout the year without interruption.

Agritourism falls under the concept of ecotourism, and it allows tourists to visit farms and rural areas, experience agricultural life and participate in agricultural activities, including tours of farms and orchards, picking fruits and vegetables, attending agricultural workshops, participating in harvesting crops, experiencing staying in rural houses, visiting farmers' markets and buying directly from producers. Agritourism shares with agroecology the values of sustainability, environmental education and support to local communities.

Jericho and Al-Aghwar governorate have many elements that can be exploited to make it a first destination for agritourism in Palestine for all forms of domestic and inbound tourism, including the warm climate and high fertility of its lands, the agricultural diversity of palms, citrus, bananas and vegetables, and the cultural and agricultural heritage that extends for thousands of years, which enhances the value of the agricultural experience for tourists and the presence of modern agricultural projects that use advanced agricultural techniques, such as organic farming and protected agriculture, and tourism infrastructure that includes accommodation facilities, restaurants and recreational facilities.

2.5 Strategic Actions for Increasing Competitiveness in Agriculture, Agribusiness, and Tourism in Jericho and Al-Aghwar Governorate

2.5.1 SWOT analysis

The SWOT analysis of Jericho Governorate highlights both the potential and challenges across key sectors such as agriculture, agroindustry, tourism, and agritourism. Strengths include the governorate's rich historical and cultural heritage, proximity to Jordan, unique climatic conditions for agricultural production (especially for Medjool dates and bananas), and a growing interest in investment, particularly in agriculture and tourism. However, weaknesses such as limited control over water resources, weak tourism and agritourism infrastructure, poor access to key sites like the Jordan River and Dead Sea, and inadequate storage and technological integration hamper progress. Opportunities arise from its proximity to major cities like Jerusalem and Ramallah, increasing awareness of green economy practices, and international donor support for sustainable projects. Despite this, threats like Israeli control over Area C, restrictions on agricultural inputs, competition

from Israeli and Jordanian tourism and agriculture, and climate change present significant obstacles to the governorate's development (see table 15).

Table 15: Strengths, Weaknesses, Opportunities, and Threats for Jericho Governorate with focus on agriculture, agroindustry, tourism, and agritourism sectors.

Strengths	Weaknesses
• Historical and cultural heritage • A proximity to the border with Jordan which enables foreign tourism • Existing of unique tourism and archeological sites such as Hisham Palace, Tel al-Sultan, Dead Sea, Jordan River, Baptism site, Nabi Mousa, Monastery of the Temptation, Mount of Temptation Monastery, and the Tree of Zacchaeus. • Full of investment opportunities in agriculture and tourism. • Unique climatic conditions which attract tourists. • Unique climatic for agricultural production mainly for Medjool Date palm, Banana, and vegetables production. • Potential of water harvesting in the wadies. • The high efficiency to the waste water treatment plant. • Plain topography with limited slope. • Approximate to the Dead Sea and Jordan River. • Modern wastewater treatment plants with tertiary treatment. • The investors are interest to invest in Jericho Governorate. • Community and hospitality with welcoming nature	• Lack of control over water resources and agricultural lands mainly in area C. • Only 25 % of Jericho houses are connected with the sewage network. • Very limited access to Jordan River, Dead Sea, and Baptism site. • Weak Investment Climate (ease of business, access to finance, government incentives, etc.) • Weak tourism infrastructure mainly for night and summer tourism (e.g. advertising campaign, • Weak agritourism infrastructure and ecotourism investments (stargazing tours, night harvesting, nocturnal animal tours, moonlight farm walks, food pairing events, lantern tours, night markets and farm-to-table meals, etc.) • Poor quality of water resources. • Misuse and mismanagement of water resources mainly in date palm sector. • Lack of technology employment in agriculture and tourism value chain, like blockchain technology. • limited infrastructure for agriculture product storage, like cold storage facilities. • Very weak innovative farming practices (including organic farming, farm-to-table “ farm-to-fork “ initiatives, farm-fresh meals, food festivals and eco-friendly agritourism activities) • Very limited educational opportunities in educational experiences, such as farm tours, hands-on workshops, and cooking classes. • Limited renewable energy projects. • Weak export infrastructure. • Low community engagement in tourism sector.

Opportunities	Threats
• A proximity to Jerusalem, Ramallah, Bethlehem, and Amman. • The increasing of awareness about green economy practices in the government programs and strategies. • Existing of donor's agencies willing to finance in the innovative and Sustainable practices in agriculture and tourism. • The existence of Jordanian – Palestinian Agricultural Products Marketing Company. • The existence of agro-industrial parc (JAPCO). • Climatic conditions for Date Palm and Banana production. • High production of Medjool Date palm which is expected to reach 25000 ton by year 2030. • Attractive climatic conditions for tourists. • The increasing investments in real estate sector (villas, chalets, hotels). • Very attractive for renewable energy investments. • Relationships between West Bank and Arab communities inside the green line.	• Israeli occupation and land confiscation. • Israeli control to area C and its natural resources such as land and water. • denied access to the Palestinian natural and archeological resources such as Dead Sea, Jordan River and Baptism site. • Restrictions imposed on the agricultural inputs such as fertilizers, pesticides, and spare parts. • Weak compensation schemes from the government for risk and disasters in the agriculture sector. • Climate changes in Palestine and the region. • Competition from the agriculture and tourism sector in Israel • Competition from the tourism sector in Jordan.

2.5.2 Access to Finance in Palestine: Challenges and Opportunities

Access to credit in Palestine is influenced by several factors, including political instability, economic conditions, regulatory frameworks, and the development of the financial sector. Lack of credit is cited as one of the top reasons why people, particularly small farmers, choose not to start a business. Access to credit can be critical for SMEs in the agriculture sector to expand and to invest in new and innovative projects. In general, banks are hesitant to lend to many SMEs due to apparent informality (registration records apparently unavailable), SMEs lack of familiarity with banking practices (including maintaining good records of accounts and use of movable property for collateral), and poor judicial enforcement of loans.

However, in the last few years, the Palestinian lending ecosystem has experiences increasing funding and lending opportunities mainly for SMEs including agriculture and tourism sectors. Palestinian banking sector is one of the main sources for corporate and business lending. In addition to the microfinance institutions, have flourished in Palestine mainly for projects in the vulnerable groups like women, youth and small

farmers. The Palestinian funding landscape also has active donor-supported program, in addition to some government programs that respond to the economic and health crises like Covid-19 Pandemic.

2.5.3 Banking sector

The banking system consists of 13 banks with total assets of \$201 billion (March 2022). Total customer deposits were \$16.1 billion, and the credit portfolio extended to individuals was only \$4.8 billion (of which 86.5 percent were extended to men, 14.4 percent to women). In addition, 2.9 million customers held accounts (only 31.3 percent held by women) (USAID, 2023). Most of the Palestinian banks has developed credit programs tailored for the business sector:

➤ Bank of Palestine: Small and Medium Size Enterprise Loans

Financing new and pipeline projects and up to 85% from the price of goods or project fixed assets. it provides some key advantages like: Grace period up to 12 months, very flexible guarantees and conditions, cover all business sector groups, provide several options for project financing based on needs, ability to finance new projects in Jerusalem, ability to finance new projects in area c, and benefit from non-financial consulting services offered by the bank.

➤ Housing Bank: Small and Medium Enterprises Financing Program with financial institutions

Provide credit facilities for SMEs in order to support their working capital, financing purchases of fixed assets and creating new job opportunities within the Palestinian market, with a maximum amount of 300,000 USD. It targets all projects and economic sectors, except purchasing of lands, real estate sector, building materials and contracting. The bank provides long-term loans such as buying machinery, equipment, production lines, commercial vehicles, etc.) (with a maximum repayment period of 5 years including grace period which could reach up to 12 months, as the case maybe).

➤ Palestine Islamic Bank: Corporate financing program

It offers financing solutions to help companies develop their business and fulfil their goals. PIB contributes by buying machines and equipment from Palestinian SMEs and financing their working capital through Islamic finance tools, such as Murabaha and Mudaraba, Musharaka, Musawamah, Istisna'a, Muzara'a, Mugharasa, and Ijara.

2.5.4 Donor organizations.

Most activities under the entrepreneurship, start-up, and innovation rubric remain donor-driven in the West Bank and Gaza. Efforts to transform the Palestinian economy into a digital and knowledge-based economy are frequently developed with the active participation of bilateral and multilateral agencies (e.g., USAID, World Bank, German Agency for International Cooperation [GIZ], Australian Agency for International Development [AusAID], Inter-American Development Bank [IDB], Sustainable Development Goals [SDG], EUROMED) or international NGOs (e.g., Spark, Mercy Corps, Care, U.S. Department of State Middle East Partnership Initiative [MEPI], We Effect), which fund through local NGOs (LEADERS, Welfare Association, Ibtikar Fund, Palestine for a New Beginning [PNB], Sharek Youth Forum, INJAZ, and Pioneers of West Bank and Gaza - Synergos).

➤ The European Palestinian Credit Guarantee Fund (EPCGF)⁶

It is a notable example of a cooperation project between Palestinian banks and foreign fund agencies to boost Palestinian start-ups and SMEs. Generally, banks are not well positioned to provide start-up financing due to the high risk and their limited institutional capacity to evaluate start-ups on a case-by-case basis. EPCGF is a partial credit guarantee initiative designed to improve finance availability for Palestinian entrepreneurs. Increasing access to this type of financing is critical for helping entrepreneurs move away from grants toward concessional and commercial financing. It provides partial credit guarantees to partner banks for loans targeting SMEs and start-ups and has so far guaranteed loans totaling U.S. dollars (USD) \$97.5 million

➤ Middle East Investment Initiative (MEII)⁷

Middle East Investment Initiative (MEII), in partnership with the U.S. Agency for International Development (USAID), the U.S. International Development Finance Corporation (DFC), and the Government of Norway launched MEII's first Loan Guarantee Facility in 2008. The MEII Loan Guarantee Facility (LGF), launched in 2008, and subsequent facility (LGF3) launched in 2016, seek to stimulate appropriately structured lending to bankable Palestinian SMEs utilizing cash flow-based lending techniques.

➤ Palestine SME Guarantee Facility II⁸

The primary objective is to enhance access to loan finance for Palestinian SMEs through improved terms and conditions, especially reduced collateral requirements and/or lower financing costs. The operation consists in a guarantee facility to the Palestine Investment Bank covering a loan portfolio to small and medium-sized enterprises (SMEs). The proposed partial portfolio guarantee to Palestine Investment Bank

6 <https://www.epcgf.org/en/Category/9/about-us>

7 <https://meii.org/>

8 <https://www.eib.org/en/projects/pipelines/all/20210808>

is intended to improve access to finance for SMEs in Palestine.

➤ Smart project⁹

Funded by the United States Agency for International Development (USAID), the SMART Project (2021-2025, \$40 million) supports Palestinian businesses to reverse the losses from COVID-19 and puts firms on a path toward sustained economic growth. As a result of the COVID-19 pandemic, 93 percent of Palestinian businesses reported a decrease in goods and service delivery, and at least a 50 percent drop in sales.

In its first year, SMART will support more than 100 Palestinian businesses—small and medium enterprises (SMEs) and start-ups—to recover from the economic impacts of COVID-19 through small grants, training on new technologies, and market access support. SMART's assistance will make SMEs and start-ups more competitive, provide them the tools to increase their market share, and expand employment opportunities for all Palestinians. More broadly, SMART will contribute to economic growth and self-reliance in the West Bank, Gaza, and East Jerusalem.

➤ FIF - Bank of Palestine SME Credit Line II¹⁰

It consists of a USD 30 million (EUR 27.5m) senior unsecured facility to the Bank of Palestine (BoP). The facility will be used for on-lending to eligible local micro-, small and medium-sized (MSME) enterprises in the West Bank which are facing increased financing needs following the events of October 7th, 2023 and the subsequent acute economic impact. The proceeds of the loan will be on-lent by BoP to eligible MSMEs in the West Bank.

➤ The EU – Palestine Investment Platform¹¹

It has been established by the EU and the Palestinian Authority in an effort to foster policy dialogue on investment and to help better identify, prioritize, coordinate and promote investment opportunities that the EU External Investment Plan offers in Palestine. Today on the margins of the second meeting of the Platform, the European Investment Bank has signed seven agreements amounting to an unprecedented total sum of USD 425 million to support Palestinian SMEs and micro-entrepreneurs.

The EIB signed three lines of credit with Bank of Palestine, Quds Bank and Palestine Investment Bank in the amount of USD 50 million, USD 32 million and USD 20 million, respectively, which will be on-lent to local SMEs, support job creation and Palestine's economic resilience. The EIB also signed a Letter of Intent

⁹ <https://www.smartproject.ps/en/Article/1/small-and-medium-enterprise-assistance-for-recovery-and-transition-smart-project>

¹⁰ <https://www.ebrd.com/work-with-us/projects/psd/55046.html>

¹¹ https://www.eeas.europa.eu/delegations/palestine-occupied-palestinian-territory-west-bank-and-gaza-strip/eu%E2%80%93palestine-investment-platform-meets-second-time-while-eu-bank-steps-its-support-palestine-making_en

with the Palestine Monetary Authority (PMA) with a view to making available USD 200 million in credit for on-lending to SMEs and micro-entrepreneurs, which will contribute to the PMA's efforts to promote economic development and to provide financial relief to local SME's impacted by the multiple recent crisis, including the Covid-19 pandemic and the hostilities in Gaza.

2.5.5 Government and Public Sector Initiatives

➤ **Palestinian Monetary Authority (PMA):** The PMA oversees the regulation of credit and banking activities. It has implemented measures to stabilize the financial sector and promote access to credit. The PMA encourages banks to lend to SMEs and sectors critical to economic development.

In 2023, The PMA has launched the "Istidama+" Fund with a value of 500 million shekels to provide financing for various economic sectors. The aim is to inject liquidity into the Palestinian market and assist enterprises affected by the consequences of war in their recovery and financial sustainability. This initiative aims to have a positive impact on the national economy¹².

The fund is directed towards providing low-interest financing with favorable terms and medium to long-term repayment periods. It includes sufficient grace periods to ensure the targeted economic sectors benefit. These sectors primarily comprise those affected by the current economic conditions, focusing on health, agriculture, renewable energy financing, and environmental conservation. This encompasses SMEs and large-scale enterprises within the mentioned sectors.

➤ **Palestinian Investment Promotion Agency (PIPA):** Offers incentives and support for investments, which can include facilitation of access to credit for businesses looking to invest in Palestine.

➤ **Government Credit Guarantee Schemes:** Initiatives like the Palestinian Guarantee Fund aim to reduce the risk for banks by providing partial guarantees on loans to SMEs. This encourages banks to extend more credit to smaller enterprises.

2.5.6 Crowdfunding

Even though it is not something new, but a progression to other micro-funding models, crowdfunding – which is another form of democratization of financing - is also emerging in the in Palestine and in the MENA region carrying with it apparently promising opportunities. Over the past two years, the crowdfunding domain in the Middle East has built noteworthy momentum and now boasts several local players across the region, each with a solid backing and support from the local venture capital and social entrepreneurship ecosystem. Notable examples in the Middle East are Aflamnah¹³ (for creative projects), Zoomaal¹⁴, Mashroo3 (for civic projects and non-profits). Launch Good started in 2013 with the aim to specifically serve the

¹² <https://www.pma.ps/en/Media/Press-Releases/the-pma-launched-the-istidama-fund-to-assist-enterprises-affected-by-the-consequences-of-war>

¹³ <https://www.aflamnah.com/>

¹⁴ <https://www.zoomaal.com/>

social causes of the Muslim population around the world. New country-specific examples are emerging every day: BuildPalestine¹⁵ which aims to empower social entrepreneurs in Palestine. Beehive which is a regulated peer-to-peer lending in Dubai. Chriky¹⁶ is an equity crowdfunding platform in Algeria. Cotizi¹⁷ is a free and secure service dedicated to collecting donations in Morocco. Fundahope¹⁸ and HelpforLeb are Lebanese platforms for raising funds. Liwwa¹⁹ and Madad²⁰ are lending and donation platforms in Egypt. Smart Crowd²¹ is a real estate crowdfunding platform in UAE, while Social Ladder²² is a fundraising and crowdfunding platform for the same country.

2.6 Strategic Actions/Interventions in the target sectors (Agriculture, Agribusiness, Tourism, and Agritourism) in Jericho and Al-Aghwar Governorate

Jericho and Al-Aghwar Governorate hold immense potential for economic growth, particularly in the sectors of agriculture, agribusiness, tourism, and agritourism. These sectors are critical to the region's development, offering a unique blend of historical, cultural, and environmental assets. However, despite the region's strategic advantages, including its favorable climate for agriculture and proximity to major tourist destinations, numerous challenges and obstacles were defined in the SWOT analysis. To unlock the full potential of these sectors, a set of strategic actions and interventions is required. These actions aim to strengthen value chains, enhance infrastructure, integrate innovative technologies, and promote sustainable practices, ultimately fostering economic resilience. This section will outline targeted interventions across agriculture, agribusiness, tourism, and agritourism, designed to address existing weaknesses, capitalize on opportunities, and mitigate threats, thereby positioning Jericho and Al-Aghwar as a hub for sustainable growth and development in the region.

2.6.1 Actions in the Agriculture Sector

- Enhance the capacity building of youth in agricultural skills. Establish vocational training centers for different agricultural skills especially in food processing, plant production techniques (date palm propagation, greenhouses constructions, irrigation system instillation), and agricultural by-products utilization. Encourage students to enroll in faculties of Agriculture and relevant sciences.
- Enhance regional and international cooperation to develop strategies to mitigate and adapt to the negative impacts of climate change on date palm production through selecting drought and salinity tolerant date palm varieties and adopting cultural practices to help farmers cope with climate change

15 <https://buildpalestine.com/>

16 <http://www.chriky.com/>

17 <http://www.cotizi.com/>

18 <https://fundahope.com/home>

19 <https://liwwa.com/>

20 <http://www.madad.com.eg/>

21 <https://smartcrowd.ae/>

22 <https://www.socioladder.ae/>

impacts, mainly, water scarcity.

- Use smart irrigation systems allow farmers to control completely the schedule of irrigation in terms of time and quantity of water. Smart systems will enable farmers to optimize chemical and fertilizers application. Moreover, reduce unnecessary water use for irrigation. and limiting the use of agrochemicals helps farmers increase the availability, quality, and environmental resilience of their water supplies. introducing solar-powered technologies will reduce energy consumption, and increase farmers profitability. Solar technologies as well, increase the efficacy of measurements to help local communities build their resilience, improve their competitiveness, and mitigate the effects of climate change
- Date fruits can be processed into numerous value-added products such as date paste, date syrup, date jam, date vinegar and date pectin. Establishing medium to large manufactories will increase the profit margins for farmers and traders, as well create new jobs and opportunities for local community. Incentivizing private sector in research to develop date palm by-products and the utilization is required.
- Enhance the capabilities of ministry of agriculture in Jericho and Al-Aghwar governorate in terms of human capacity and infrastructure in veterinary is priority. More attention should be given to veterinary service since most of livestock owners are Bedouins and has no permanent residence. Therefore, at least two mobiles Veterinary clinics provided with essential instruments, vaccines and medicines should be available and active to serve Bedouin communities in the governorate.
- In total more than fifty thousand heads of cattle are living growing up in Jericho governorate mainly for milk, representing more than 11% of the total cattle in Palestine. Human building capacity for ministry of agriculture (MoA) staff, cattle owner, and women in local communities in cattle husbandry under harsh conditions, Artificial insemination, new born animal care, and cheese made are requested in order to enhance livelihood of rural communities.

2.6.2 Actions in the Agrifood business

- Establish cold storage areas for date palm fruits will enhance the added value for fruit production and enable farmers particularly small farmers to sell products in the proper time with responsible price. Other crops such as fresh or frozen vegetables could be stored during the peak of season and sell later. This facility will create a career opportunity for the communities in Jericho and Al-Aghwar governorate.
- Increase competitive of agribusiness enterprises by increase clean energy contribution in Jordan Valley. Develop public incentives for the use of energy for date palm production from renewable sources such as including solar, and biomass.

2.6.3 Actions in the Tourism Sector

- Encourage abroad promotional and marketing activities for tourist sector in Jericho, this includes: establishing an online platform to provide comprehensive information about hotels, restaurants, attraction and event information including rating, location, contact information, and to facilitate booking

- Provide vocational training on hospitality and tourism, and handmade crafts for youth in Jericho and Al-Aghwar governorate. Training centers will provide basic information about services in hotels and resorts.
- **Mulukhiyah (*Corchorus olitorius*) is Rehaweya:** public-private body to coordinate, organize, and implement several activities to encourage gastronomy in Jericho and Al-Aghwar governorate. Priority will be given to encourage tourists to visit the governorate to test and consume Mulukhiyah (Jews Mallow) dish in its home land in the street and public areas. As well to adopt sustainable practices (less food waste and Responsible Consumption and Production). These activities will be done yearly in the first week of July.
- Although Jericho is the oldest city in the world, including many attracted historical sites such as mountain of temptation, sycamore tree, Hisham palace, and dead sea. Jericho in night is boring for international tourists. Organizing and implementing activities over the day or afternoon such as festival, carnival, and /or offer national or international food and beverage in new restaurants will attract tourists to stay at night, consequently, hotel number, occupancy, and profitability increased. Other proposed activities such as gastronomy, and sightseeing, and night tours will attract tourist to spend more time in the governorate.
- Encourage religious and ecotourism tours. Updating site's locations and eco-destinations through preparing informative map for governorate. As well, improve the requested infrastructures such as WC, street, informative signs are essential.

3 Supportive projects

3.1 Water resources management:

The strategy proposed two approaches to provide water to Jordan Valley, these are:

a. Water harvesting project (Medium size dam)

The project will harvest water in large pond with size of about 100000 m³. The water will be harvested from the upper catchment and delineated to the pond by gravity. 100 mm of rainfall over catchment of about 6 km² will provide water of about 102000 m³ assuming the runoff percent is about 17%. The project will be constructed over 17 dunums with a pond depth of about 6 m. a retention pond of about 1 dunum is required at the entrance of the pond to reduce the velocity of water which discharge to the pond, and to prevent the sediment from entering into the pond, thus the pond is expected to serve longer time with half-life of about 25 years. The project is expected to provide water to 100 dunums of date palm or 120 dunums of vegetables. For safety, a fence around the pond is required to prevent children's and animals from entering the pond.



b. Subsurface irrigation system in date palm farming:

Subsurface irrigation pattern delineated the water directly to the root system; thus, the system irrigates the plant not the soil. Based on a chapter book published last year by Hardan, the system reduces the irrigation water required by tree of about 30% per year (Hardan, 2023). A special irrigation pipes are required to be installed beneath the soil at depth of about 25 – 30 cm. this method not only reduce the required irrigation amount, but also will reduce the evaporation. Based on the Ministry of agriculture, the number of Palm trees in Jericho and Al-Aghwar governorates is about 335671 tree (MoA, 2024) and its consumed nearly 23.5 million m³ annually assuming 70 m³ on average per tree per year. Subsurface irrigation technique could reduce the pressure on water resources in Jordan Valley by saving of about 7 million m³ per year, thus making the water resources more sustainable.



3.2 Livestock project for small farmers

The project idea is about providing small farmers with 5 head of sheep. The sheep's will be feeding partially on crop residue such as cucumber, tomato cauliflower, cabbage, and squash; thus, part of the feed will be saved and the running cost will be reduced. Moreover, the animals will eat the grasses between palm

trees. Thus, the plowing and herbicides will be lower. The cost of a productive sheep is about 3000 ILS. Distributing 500 sheep for 100 farmers will cost of about 1.5 million ILS. The project is expected to provide the families with milk, cheese, labneh, and provide the local market with lamb's meat. The running cost per sheep per year is about 1000 ILS, while the revenue is about 2000 ILS. Therefore, each family will generate a profit of at least 5000 ILS per year.



3.3 Planting -Jujube plant between Palm trees (Intercropping system).

The jujube tree (*Ziziphus jujuba*) grows in a wide range of temperatures, as it tolerates both low and high temperatures. Its needs from cold hours are low, which are necessary to break the dormant phase. The trees are also characterized by their tolerance to frost during the winter and early spring due to the late appearance of vegetative growth. The jujube tree can grow in all soils. Dry or swampy, or even in alkaline and highly saline soils. It also grows in soils in which no other type of fruit can grow, so it was nicknamed (the king of fruits in arid lands), due to the presence of the taproot that has the ability to penetrate layers of solid soil and draw water from the depths. Well-drained sandy soils are considered the most suitable for the growth of the jujube tree. One of the most important features of the jujube tree is its tolerance to drought conditions (Alzrgany Gardening, 2016). The planting distance in sandy soils is 5X5 meters, and in clay soils it is 6X6 meters. The Indian jujube tree is very productive, as the production of a tree that is 3 to 4 years old reaches 250 to 300 kg, and it gives a crop in poor lands. It tolerates unsuitable environmental conditions, as it tolerates drought and salinity. The jujube is a thorny tree that reaches a height of 8 meters. Its leaves are oblong, and its fruit is oval, brown to reddish, resembling an olive, and it tastes delicious (Green future, 2024).

Company profile

Partners in Creative Solutions (PCS)

Partners in Creative Solutions (PCS) is a leading Palestinian consulting firm that combines expertise in research, strategic planning, and capacity building to deliver innovative and impactful solutions. With a commitment to sustainable economic development and resilience, PCS works with governmental and non-governmental organizations, donor-funded initiatives, and private companies across Palestine and the region.

The PCS team brings diverse expertise in areas such as strategic planning, socio-economic development, institutional reform, financial management, and the green economy. This multidisciplinary approach allows PCS to address complex challenges with tailored strategies that align with the specific needs of its clients and the socio-economic context of Palestine.

PCS specializes in providing high-quality services, including feasibility studies, program evaluations, strategic frameworks, capacity-building programs, and financial consulting. Whether facilitating institutional development, enhancing project efficiency, or driving impactful public awareness campaigns, PCS ensures measurable results and sustainable outcomes.

Experts profile

1. Dr. Rabeh Morrar

Rabeh Morrar received his Ph.D. degree in Innovation Economy from Lille 1 University for Science and Technology, Lille, France in 2011. He joined the Department of Economic, An-Najah National University, Palestine, as an Associate professor in Economics and in 2011 and became the head of Economic Department between 2012- 2015. He has been the head of research committee in the Palestine Public School of Administration since 2022. In 2019, he finished a postdoctoral degree in development economy from Northumbria University, UK. He was the Director of Research in the Palestine Economic Policy Research Institute (MAS) from 2020 to 2023, and still working as a research visitor in MAS. His current research interests include Public Policy, and Developmental and Green Economy. Dr. Rabeh is a Fellow in many of the regional and international economic research association like Economic Research Forum (ERF), Arab Council for the Social Sciences (ACSS), and Middle East Economic Association (MEEA). He published more than 30 articles in an international peer-reviewed journals, and many other reports and policy papers at local and international levels.

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2. Dr. Khaled Hardan

After finishing his Ph.D degree in land and Water Management from the University of Natural Resources and Life Sciences in Vienna, Austria in 2010. Dr. Hardan worked as a researcher and coordinator to the Lower Jordan River Project at the Friends of Earth Middle East (FoEME), Bethlehem. Furthermore, he worked as a GIS specialist at the Action Against Hunger (ACF), Jerusalem. His responsibility was to create and develop a geodatabase for water, sanitation and food security in the southern part of Palestine (Hebron area). Over the period from 2014 to 2016, Dr. Hardan worked with Ricardo-AEA UK, as a local expert and a team member for preparing the first National adaptation Plan (NAP) to cope with Climate change in Palestine, and during the study he covered water, agriculture, terrestrial ecosystem, and food security sectors. In 2021, he got a mentor certificate from Mowgli Mentoring institution from (UK) to advice the Agri-businesses of entrepreneurs in Palestine. Dr. Hardan worked as a senior expert and planner for the agricultural sector in Palestine through implementing the National Spatial development Planning project (2020 – 2050), which is funded by Munib and Angela Masri Foundation. Dr. Hardan now is working as a coordinator to the FAO project: Green jobs and Sustainable Income Opportunities for Palestinian Female and Male Youth in the Agri-food Sector- Phase II. Recently Dr. Hardan published a chapter titled: Surface and subsurface irrigation in Date palm farming using smart and precision irrigation Techniques (Case study, Al-Quds Open University). In Book: Promoting Innovation in Research and Education in the Field of Precision Agriculture. Eliva Publisher, March, 2024. Over the period from March – December, 2023, Dr. Hardan conducted a study about “The Reality of the Agricultural Holders and Holdings in the State of Palestine” for the benefit of PCBS. Currently, Dr. Hardan is a team member for the National Climate Change Adaptation in Palestine. Since Oct. 2022, Dr. Hardan is the Dean of the Faculty of Agriculture in Al-Quds Open University and also, he is the Director of the agricultural Research Center in Jordan Valley.

Khaled Hardan

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3. Dr. Aziz Salameh

Dr. Aziz Salameh: In 2005, Dr. Salamah earned PhD from the University of Natural Resources and Applied Life Sciences (BOKU) in Austria. Dr. Salameh is a senior lecturer and researcher in Al-Quds Open University. Currently he running several projects such Erasmus Benefit projects (Smart and precision agriculture), organic farming project, Quinoa project, Breedtech Project, conservation of endangered plant species in Palestine. Pollination of Dates Palm by a practical and economical methods. Currently, Dr.

Salameh introducing four varieties of Quinoa plants to Palestine, mainly in the Jordan valley area. Aziz has track record of publications.

. During his career, several agricultural projects have been implemented under his direct supervision. Dr. Salameh has the capability with proposals writing for fundraising and grants from Donors.

Aziz SALAMEH,(PhD, Plant Breeding), senior researcher at Faculty of Agriculture, AlQuds Open University, Palestine.

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