SCP National Action Plan

SUSTAINABLE CONSUMPTION AND PRODUCTION NATIONAL ACTION PLAN IN PALESTINE | 2016

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SwitchMed Programme is implemented by the United Nations Industrial Development Organisation (UNIDO) and the United Nations Environment Programme (UNEP), through the Mediterranean Action Plan (MAP) and its Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) and the Division of Technology, Industry and Economics (DTIE).
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FOREWORD

The Sustainable Consumption and Production National Action Plan (SCP-NAP) for Palestine is one of the main outputs of the SwitchMed program that had been executed in the Mediterranean region with UN Environment support. SCP is one of the concepts being implemented in Palestine and this NAP draws a roadmap mainstreaming the concept in three relevant sectors: Tourism, Housing and Construction, Agriculture and Food.

Those sectors were selected according to the assessment that was developed earlier under the SwitchMed program in addition to the most recent developments in this field. Numerous activities and initiatives can be developed and implemented in those three sectors from an SCP approach. The timeframe of this NAP is 6 years (2017-2022) coinciding with the sectoral and cross sectoral strategies which are currently being developed in Palestine.

A participatory approach was used in the development of the SCP-NAP. All relevant stakeholders in the different sectors were consulted and they shared there inputs in series of workshops, meetings, and consultations during the preparation of the NAP. SCP is one of the most multidisciplinary themes, in which most of the sectors can share and contribute during the implementation phase.

The development and implementation of this NAP is one of the instruments which will facilitate the Palestinian's attempts to achieve Sustainable Development that shall guarantee the rights of both the current and future generations alike. This is guaranteed by the Basic Law and Environment Law No. (7) for the year 1999, and its amendments.

By developing and implementing this NAP, Palestine will be one of the first countries who initiated implementation of SDG12 - Sustainable Consumption and Production - and the development of an SCP-NAP is among its success indicators.

The development of the SCP-NAP is the first step in long way of targeting the SCP concept and the implementation of this NAP needs a lot of efforts, financial resources, coordination and cooperation, and continuous monitoring and evaluation. We hope that we will be able to implement this SCP-NAP and secure the needed funding either through local resources or through the international support which should push forward the support in achieving Sustainable Development. It is worth mentioning that Palestine is one of the countries in the international community who started the implementation of the SDGs and took the needed institutional and legal arrangements in this regard by establishing a national SDG team under the leadership and supervision of the Prime Minister's Office. Palestine has further started the integration and merging of the SDGs into the national sectoral and cross sectoral strategies in the planning cycle of the period 2017-2022. This will be reviewed in the next planning cycle in order to implement more priority targets.

Adalah Attireh

EQA Chairperson

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EQA also expresses its thanks to the European Union which is funding the SwitchMed program, the umbrella under which this SCP-NAP was developed.

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Supervision and coordination

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About SwitchMed

The EU funded SwitchMed project is implemented jointly by the project countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine and Tunisia) and the institutional partners UNEP, UNIDO and SCP-RAC. SwitchMed is divided into 3 components addressing different parts of the transition process to Sustainable Consumption and Production (SCP) - SDG12:

(i) A policy component, built around the Barcelona convention (for the Protection of the Mediterranean Sea and Coastal Regions) and SCP national action plans;

(ii) Demonstration activities linked both to the policy component and the private sector;

(iii) Networking function to allow for exchange, joint learning and further scaling up;

UNEP-DTIE is coordinating the national policy component – Reinforcing circular economy in the Mediterranean governance framework and mainstreaming SCP in national policies. Under the national policy component the project countries will develop Sustainable Consumption and Production National Action Plans (SCP-NAP).

The implementation methodology used under the SwitchMed national policy component has been adapted to each countries' specific needs and requests. To assure coherence between ongoing and previous national work, the activities at country level build on already existing work and projects (Green Economy, SCP assessments, sustainable development assessment and strategies, SCP projects, etc). In this process UNEP works with national consultants in the project countries to allow a transfer of knowledge and reinforcement of national capacity. The SCP-NAP methodology assures that a large and diverse group of national stakeholders are involved in the national process (government, civil society, private sector, media, academia, bi- and multilateral partners, UNCTs, etc). Furthermore collaborations with UN institutions and other bi-lateral partners have been established at country level.

Main objectives:

- Leapfrogging to socially inclusive Sustainable Consumption and Production practices preserving the environment;
- Integrating the natural capital and the environment in the core business of Mediterranean companies
- Creating a critical mass of citizens for SCP;

The successful development of eight SCP-NAPs demonstrates that:

(i) in-country activities have to be nationally owned and nationally driven to be successful;

(ii) the involvement of a large and diverse group of national stakeholders from the beginning of the planning process is crucial;

(iii) linkages and synergies have to be established with already existing projects and initiatives and collaboration with other partners should be encouraged and fostered.

Each country has chosen to follow its own path to develop an SCP-NAP and this series of publications clearly shows the diversity of processes as well as outputs. In some countries the SCP-NAPs are based on SCP national assessments, while in other national partners decided to build upon already existing national SCP information and knowledge.

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Abbreviations

Applied Research Institute – Jerusalem	ARIJ
Association of Palestinian Local Authorities	APLA
Chamber of Commerce	CoC
Community Based organizations	CBOs
Environment Quality Authority	EQA
Environmental Impact Assessment	EIA
Environmental Management Plan	EMP
Gaza Strip	GS
Good Agricultural Practices	GAP
Good Handling Practices	GHP
Good Manufacturing Practices	GMP
Gross Domestic Product	GDP
Hazard Analysis Critical Control Point	HACCP
International Organization of Standardization	ISO
Joint Service Councils	JSCs
Local Governmental Units (Municipalities and village councils)	LGUs
Mediterranean strategy on sustainable development	MSSD
Ministry of Agriculture	MoA
Ministry of Education and Higher Education	MoE
Ministry of Finance and Planning	MoF
Ministry of Health	MoH
Ministry of Labor	MoL
Ministry of Local Government	MoLG
Ministry of National Economy	MNE
Ministry of Public Works and Housing	MoPWH
Ministry of Tourism and Antiquities	MoTA
Municipal Development and Lending Fund	MDLF
National Action Plans for Sustainable Consumption and Production	SCP-NAP
Non-Governmental organizations	NGOs
Occupational Health and Safety	OHS
Palestinian Central Bureau of Statistics	PCBS
Palestinian Energy and Natural Resources Authority	PENRA
Palestinian Federation of Industries	PFI
Palestinian Standard Institution	PSI
Palestinian Water Authority	PWA
Photovoltaics	PV
Prime Ministers' Office	PMO
Sanitary and Phytosanitary	SPS
Strategic Environmental Assessment	SEA
Strengths, weaknesses, opportunities and threats	SWOT
Sustainable Consumption and Production	SCP
Sustainable development Goals	SDGs
Sustainable Public procurement	SPP
Ten Year Framework Program	10YFP
The United Nations Framework Convention on Climate Change	UNFCC

United Nations Economic and Social Commission for Western Asia	UN-ESCWA
United Nations Environmental Program	UNEP
United States Dollar	USD
Wastewater	ww
Wastewater treatment plant	wwtp
West Bank	WB

Executive Summary

The Palestinian National Action Plan on Sustainable Consumption and Production (SCP-NAP) was developed with the lead of the Environment Quality Authority, as part of the policy component of SWITCH MED Project, implemented by UNEP and funded by the European Union. The National Action plan was prepared in a participatory approach, taking into consideration all stakeholders including, local and national government, semi governmental organizations, nongovernmental organizations, grass roots organizations and initiatives, private sector, universities and research centers. More than 300 persons participated at various stages in the development of the plan. The SCP-NAP time frame is from 2017 to 2022 in lieu with the Palestinian National Planning framework.

The priority areas for mainstreaming sustainable consumption and production were identified based on three criteria, environmental, socio-economic, and institutional / political. The three priority areas identified for mainstreaming Sustainable Consumption and Production (SCP) are:

- Agriculture and food:
    - focusing systematically on various aspects of sustainable agricultur production and climate smart agriculture,
    - tackling environmental practices in food manufacturing, and
    - addressing sustainable food consumption.
- Tourism focusing on Eco-Tourism.
- Housing and Construction focusing on green building and green public procurement of infrastructure.

The vision of the SCP in Palestine is “Sustainable consumption and production patterns are systematically and explicitly integrated in the national development agenda in Palestine and are being adopted and implemented by the various stakeholders in Palestine”.

The following strategic objectives were identified:

1) Develop, promote and implement sustainable agricultural practices, food production, and consumption in Palestine with special focus on climate smart agriculture, resource efficient production processes; in a manner that increases food security and sovereignty and ensures the right of Palestinian people to healthy nutrition and protection of natural resources.

2) Promote of innovation and knowledge and the integration of practices, which enhance resources efficiency and contribute to natural and human capital protection, throughout entire planning and construction process and life cycle of buildings.

3) Develop and widen Eco-tourism to expand business in the off season and extract additional value from seasonal tourism to ensure protection and rehabilitation of natural resources, respecting spatial, ecological, and socio-cultural carrying capacities of the destination and reducing environmental impacts of tourism.

In order to achieve the three objectives; operational objectives were identified. For each operational objective the plan has identified the outcomes, intervention, stakeholders responsible for implementation, partners in implementation, and indicators to measure achievements.

For mainstreaming SCP in agriculture and food the following operational objectives and main themes were addressed:

Operational objective 1: Develop, promote and implement sustainable agricultural practices in Palestine with special focus on climate smart agriculture, resource efficient agricultural processes, and protection of natural resources through implementation of best environmental practices and technologies in the growing, harvesting, and post harvesting processes.

- Enhancement of the use of additional and alternative water resources for agricultural purposes including sustainable community level irrigation schemes and infrastructure.
- Increase resource efficiency in live stock production.
- Increase resource efficiency in plant production systems.
- Promote accesses to renewable energy in agricultural holdings, and promote shifting to renewable resources.
- Reduction of post harvesting waste.
- Improved management of agricultural waste.

Operational Objective 2: develop, promote and implement best environmental and health practices and technologies in food manufacturing practices in Palestine.

The following was addressed under this objective: environmental audits to 10 manufacturing and implementation of mitigation measures, introduction of preliminary wastewater treatment in dairy manufacturing, certification systems, salt reduction in food products, occupational health and safety, awareness and capacity building, and establishment of a data base on food manufacturing.

Operational objective 3: Develop policy and legal framework to promote sustainable agricultural production and sustainable food production and consumption with special focus on conservative agriculture, and empowering small farmers and their cooperatives.

The following topics for policies development were identified:

- Green value chains.
- Organic farming and marketing.
- Access of farmers and cooperatives for “green financing”.
- Agricultural Insurance and Lending Funds.
- Cooperatives – SWITCHING to sustainable production.
- Mainstream environmental issues in projects, programs and strategies.
- Certification systems.
- Standards and regulations associated with composting.
- Virtual water export and import.
- Healthy nutrition.

- School health.
- Food fortification.

Operational objective 4: Sensitize and educate food producers, retailers and consumers, and support the development of appropriate market tools and information, to promote green value chains of agriculture management, as well as food processing and distribution and consumption.

Awareness and capabilities of stakeholders was focused on agricultural extension, and capabilities of stakeholders in the sector. Furthermore, capacity building to stakeholders to food manufacturing and to actors involved in improving nutrition were addressed, as well as awareness campaigns on sustainable food consumption patterns were also addressed.

Operational objective 5: Promote innovation, knowledge and participatory research that engages farmers, civil society organization, researches and policy makers on aspects related to sustainable agriculture and food production practices and technologies with particular focus on improved resource efficiency, minimizing environmental impacts, protecting natural resources, and improving the livelihood of the farmers.

The following was identified to achieve operational objective 5:

- Establish a network for information and knowledge sharing on sustainable agricultural practices.
- Share knowledge and information about greening value chains of agriculture.
- Compilation of best practices utilized in the country related to sustainable agricultural.
- Support civil society organizations and cooperatives to report on best practices.
- Development of national indicators to measure sustainability aspects in agricultural sector.
- Establish and support already established demonstration farms practicing various forms of sustainable agriculture.
- Conduct participatory Research related to SCP in agriculture.
- Support master students to conduct thesis on aspects of sustainable agricultural practices.

To mainstream SCP in construction and housing, the following operational objectives were identified.

Operational objective 1: Enhance the role of public policy and decision making, and leadership by example for triggering the greening of the building sector.

Operational objective 2:Promote Retrofitting existing energy and resource intensive buildings stock.

Operational objective 3: Sensitize and raise awareness of all stakeholders involved in housing and construction, including local authorities, consumers, professionals of the sectors and institutions and develop capacities for mainstreaming green elements of buildings and sustainable life style in using buildings.

The initiatives identified to achieve the above operational objectives are grouped under six themes: sustainable public procurement, waste management, renewable energy and energy efficiency, development of regulatory environment, capacity building and awareness, and certification systems for green buildings.

To mainstream SCP in Eco tourism the following operational objectives were identified:

Operational objective 1**:** Promote the diversification of the tourism offer from mass tourism to alternative forms of tourism (e.g. ecotourism, cultural tourism, rural tourism, off-season tourism) to reduce the impacts of seasonality and to reduce environmental pressures on natural systems and protect them.

Operational objective 2: Promote regulatory, legislative and financial measures to mainstream SCP in the tourism sector, to enhance off season tourism, to create green and decent jobs, and to promoting local community engagement and empowerment.

Operational Objective 3**:** Raise awareness, capacities and technical skills to support sustainable destinations, and promote the development of appropriate marketing and communication tools to enhance sustainable Tourism.

In order to achieve these operational objectives the following outcomes were identified:

- Identification of list of eco-tourism sites.
- Development of 15 eco tourism sites.
- Sustainable management of eco-tourism sites.
- Marketing and promotion of newly developed sites.
- Creating an enabling environment for switching towards sustainable tourism.

The total estimated budget of the SCP-NAP is 280 Million USD, of which more than 90%equivalent to about 257 Million USD for sustainable agricultural. The budget for mainstreaming SCP in other sectors was estimated at 2.29 Million USD for eco-tourism, 12.75 Million USD for green buildings and sustainable public procurement, 2.86 million for sustainable food manufacturing, and 5.9 Million USD for sustainable food consumption.

1.Chapter One: Introduction and Background

1.1. Introduction

The increased acknowledgement of the importance sustainable consumption and production (SCP) has lead to the adoption of the ten year framework program (10YFP) on SCP at the United Nations Conference on Sustainable Development (RIO+20) at Rio De Janeiro in 2012. This has been followed up by the development and adoption of the 10 Year Arab Framework on SCP in 2013. In parallel to this, at the Mediterranean region; SWITCH-Med SCP initiative was launched to "facilitate the shift toward sustainable consumption and production (SCP) in the Southern Mediterranean Region"[1]. The initiative is composed of three components: a) policy component to support the development of National Action Plans for Sustainable Consumption and Production (SCP-NAP); b) demonstration activities; and c) networking and knowledge exchange. Palestine is one of the nine participating countries in the SWITCH MED initiative and has started the development of its national SCP action plan. Through the project, UENP has facilitated the elaboration of an "Assessment Report on Sustainable Consumption and Production Policies in Palestine 2015". The report was supported by the Environment Quality Authority (EQA) and was presented in a multi-stakeholder consultation meeting in 2015. The SWITCH MED initiative facilitated the development of the National Action Plan for SCP; presented in this document.

The plan was developed taking into consideration the guidelines developed by UNEP "Planning for Change"[2]. The guideline suggested a 10 step approach, which is presented in Figure 1,combined with a cross cutting steps and approaches; specifically linking to existing national strategies and consultation with stakeholders. The steps are grouped in three phases: planning, development, and implementation& monitoring. The planning steps were concluded prior to beginning of the development process with the conclusion of the assessment report on SCP. The planning phase started in May 2016 and concluded with the Palestinian National Plan on Sustainable. Consumption and Production (SCP-NAP); presented in this document. The development phase consisted of three steps; step four: selection of priority areas, step five: defining objectives and setting targets, and step six selecting policies and initiatives. These steps were conducted in a multi-consultation process. The last phase; which includes endorsements, implementation, monitoring and evaluation will start immediately after the publication of this plan in October 2016.

[1]SWITCH Med Programme in Short. http://www.switchmed.eu/fr/switch-med-programme Last accessed June, 29 2016

[2] UNEP (2008) Planning for Change: Guidelines for National Programmes on Sustainable Consumption and Production.

It is important to note that the development of the National Action Plan on SCP has taken into consideration the assessment report conducted in 2015, various national strategies and plans including the national environmental strategy 2014-2016; review of the environmental strategy 2014-2016; the drafted environmental policies identified for the 2017-2022 environmental cross-sectoral strategy, the climate change adaptation plan, the Sustainable development Goals (SDGs) and associated indicators, and national strategies and plans related priority areas selected such as agriculture, tourism, environment, energy, housing. Furthermore the SCP development process has taken into considerations regional SCP documents and plans. The action plan was developed for the duration of 2017-2022; in lieu with the governmental strategic planning process of the State of Palestine.

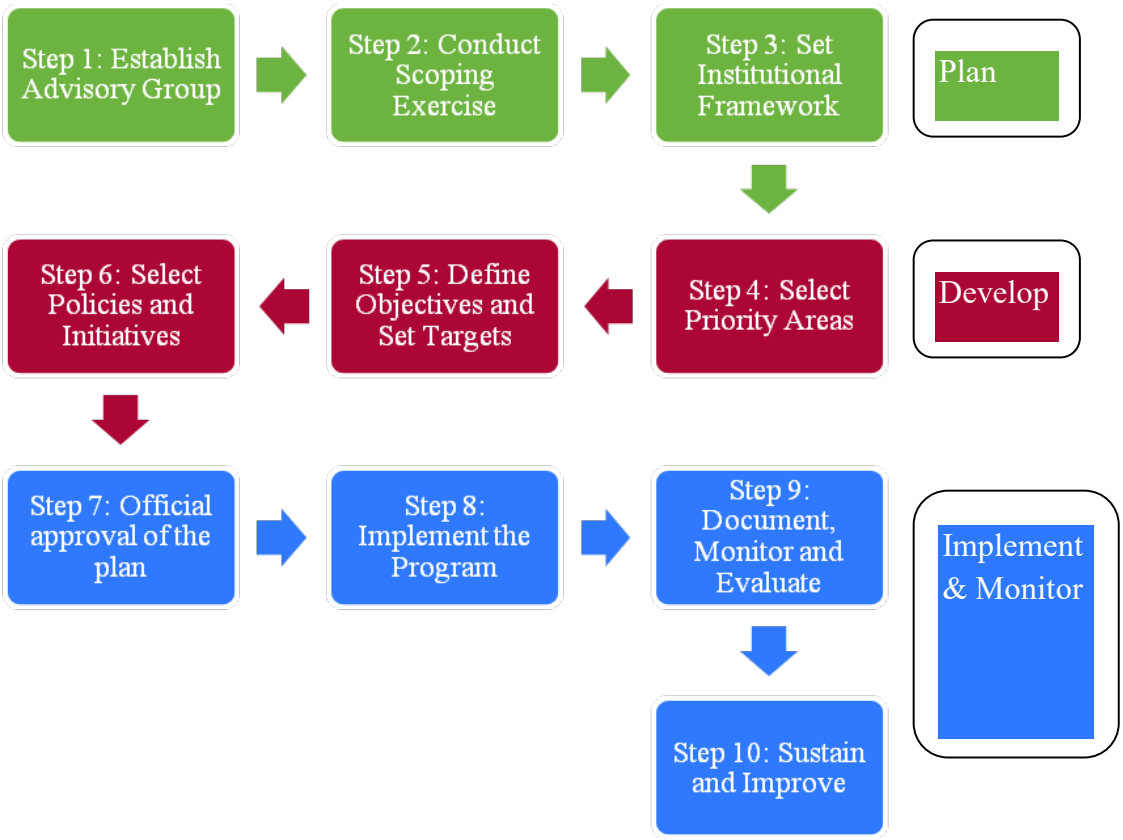

Figure 1: SCP development process– source: (UNEP, 2008).[3]

1.2. Methodology for Development of the Sustainable Consumption and Production – National Action Plan

The development of SCP action plan has engaged multi-stakeholder consultation process n the thematic priority areas identified. First of all internal meetings and workshops took place to

[3] UNEP (2008) Planning for Change: Guidelines for National Programmes on Sustainable Consumption and Production

confirm the priority areas selected and to discuss internally the draft suggested SCP per each priority area. This was followed by multi-stakeholders workshops per priority area followed by an overall workshop for launching. Furthermore, additional meetings with relevant stakeholders took place as needed. The feedback and the results obtained from the stakeholders were integrated into the document. Table 1 – shows a list of meetings and workshops conducted; while Annex 1 shows the people consulted in the process.

During the past two years; several workshops and meetings were conducted to raise awareness and capacities and to consult stakeholders on the SCP with more than 300 participants from all sectors; national and local government, NGOs and CBOS, private sector, cooperatives, and academia.

As indicated in the introduction; the planning process for the SCP followed the 10 steps approach "planning for change" identified by UNEP (2008).[4]

Steps one and two-establish advisory group and conduct scoping exercise: were completed with the publication of the report Assessment Report on Sustainable Consumption and Production Policies in Palestine 2015.

Step Three-set the institutional framework: has already been identified in 2015 and further developed in 2016. The action plan has presented the agreed upon institutional framework for SCP in the next section.

Step four-select priority areas: during the scoping process, a preliminary review was conducted and list of priorities were identified. However, it was seen necessary to reexamine the priorities because the approach of the Regional Action Plan on Sustainable Consumption and Production in the Mediterraneanof selecting economic sectors and looking at water, energy, waste, education and life styles…etc, as cross cutting themes in each economic sector was seen to be more appropriate than the approach utilized earlier in the selection process.

Furthermore, with the establishment of the environmental sector as a crosscutting theme, it is institutionally more appropriate to address these issues (energy, water, waste, education and life style and consumer information) as cross cutting under various economic development sectors. Nevertheless, interventions within each priority area covered the cross-cutting themes.

Steps five and six-define objective and targets, and select policies and instruments: A multi-stakeholder consultation was conducted for the development of objectives, policies and targets.

Step seven- official approval:–EQA will submit the plan to the ministerial cabinet for endorsement. The Prime Minister has participated in the launching event of the plan.

Steps eight, nine and ten-Implementation phase: these steps will start after the official endorsement of the document. Chapter five describes the monitoring and evaluation

[4] UNEP (2008). Planning for Change .Guidelines for National Programs on Sustainable Consumption and Production. Paris. United Nations Environment Program.

arrangements for the plan. It is important to note that the identification of initiatives was combined with identification of lead responsible agency for implementation.

Table 1: Documentation of consultation process

Date	Subject	Stakeholders	No. attended	No. of institutions participated
2015	Discussion of the assessment report	Governmental agencies, NGOs, private sector, universities	47	24
2016	Three days Training on SCP	Governmental agencies, NGOs, private sector, universities.	58	23
2016, July, 21	Multi-stakeholders workshops – Eco tourism	Governmental agencies, NGOs, private sector, universities	47	19
2016, July , 24	Multi-stakeholders workshops – Construction and Housing	Governmental agencies, NGOs, private sector, universities	43	19
2016, August, 8 and 9	Multi-stakeholders workshops – Agriculture and food	Governmental agencies, NGOs, private sector, universities	43	20
2016, August, 25	Meeting with MoA	Governmental Agencies	20	2
2016, August 30	Meeting with PCBS	Governmental Agencies	9	2
2016, May-October	Internal meetings at EQA	Governmental Agencies	10	1
2016, August - September	Further consultations and meetings with governmental agencies	Governmental Agencies	8	4
2016, October, 5 and 6	Launching SCP-NAP and SCP Fair	Local and national government, NGOs , COBs, cooperatives, unions, private sector, universities and research centers	279	95
2016, October 5th and 6th	SCP Fair and knowledge sharing event	18 presentations and 37 exhibitions		

1.3. Background:

1.3.1. Global and regional trends on SCP

SCP was identified as a crucial factor for development already in 1992 as stated in Rio principle No. 8:

"States should reduce and eliminate unsustainable patterns of production and consumption…."

In 2002 at the World Summit on Sustainable Development in Johannesburg a significant weakening of the wordings of the principle eight was observed, where "reduction" and "elimination" of unsustainable patterns were shifted to softer wordings of "encouraging' and 'promoting' sustainable consumption and production. Furthermore, an assessment was conducted in 2011 on the status of implementation of Rio Principles and Agenda 21, in which assessment for implementation on SCP was conducted; this assessment has concluded that:

"progress made has been almost exclusively on the production side; and secondly, production-side progress has focused almost exclusively on technology and efficiency, and achieved at best relative decoupling of resource impacts to GDP, not absolute decoupling. Governments have been reluctant to engage on consumption-side policies; and the private sector, without regulation, does not have incentives to contribute in the elimination of unsustainable consumption and production." [5]

Furthermore, the report indicated that Marrakesh process that started in 2003 failed to achieve its goal at the time, as all the consultative process could not come to an agreement on 10 years framework Program on Sustainable Consumption and Production (10YFP).

In 2012; at RIO+20; the 10 year framework of program on SCP was finally adopted (i.e. about 10 years after the Marrakesh process started). The SCP has finally been acknowledged by high level policy makers as a crucial tool for achieving sustainable development. SCP has a goal on its own in the SDGs; in addition many other SDGs address issues that are related to SCP. This global development was accompanied by regional developments and progress on SCP:

At the Mediterranean region two major developments took place:

1)The proposed UNEP/MAP Mid-Term Strategy 2016-2021 includes SCP as a cross-cutting theme. The revised Mediterranean strategy on sustainable development (MSSD) 2016-2025 has identified the transition towards a green and blue economy, including the promotion of SCP patterns as a key objective.

2) The approval of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean took place in February 2016. The vision identified in the regional plan states:

"By 2027 a prosperous Mediterranean region is established, with non-pollutant, circular, socially inclusive economies based on sustainable consumption and production patterns, preserving natural resources and energy, ensuring the well-being of societies and contributing to clean environment and healthy ecosystems that provide goods and services for present and future generations."

The plan has identified four priority thematic areas of interest for the region these include: 1) food, fisheries and agriculture, 2) goods manufacturing, 3) tourism, and 4) housing and

[5] Stakeholder Forum for a Sustainable Future (2011). Sustainable Development in the 21st century (SD21) ***Review of Implementation of the Rio Principles:*** Detailed review of implementation of the Rio Principles. December 2011. P.59

construction. This action plan has considered land use, water efficiency, resource efficiency, pollution (generated by wastewater, chemicals, and solid waste), transportation and mobility, and consumer behavior as cross cutting issues.

At the Arab region the following was taking place:

First: Development of an Arab strategy on Sustainable Consumption and Production which was approved by the Council of Arab Ministers Responsible for the Environment in 2009 and endorsed by the League of Arab States, the United Nations Economic and Social Commission for Western Asia (UN ESCWA) and the United Nations Environment Programme (UNEP).

The strategy on SCP in the Arab region developed, which was developed in 2009; had identified six priority areas; these are: 1) energy for sustainable development, 2) water resource management, 3) waste management, 4) rural development and poverty alleviation, 5) education and life styles, and 6) sustainable tourism.[6]

Second: Development of a Roadmap for the Implementation of a 10-year Framework of Programmes on Sustainable Consumption and Production in the Arab Region in August 2013. The road map was adopted in 2013 by the Council of Arab Ministers Responsible for Environment. The main areas of work were identified as: 1) communication and institutionalization of the SCP Strategy; 2) prioritization of SCP measures and policies and development of work plan; 3) raising fund for implementing SCP projects/programs, 4) implementation 10YFP program, and 5) monitoring and evaluation of SCP.[7]

The Arab road map aims at promoting sustainable consumption and production in the Arab region. The priorities of focus for initial programs were identified as 1) consumer information, 2) sustainable life styles and education, 3) sustainable public procurement, 4) sustainable buildings and construction; and 5) sustainable tourism, including eco-tourism[8].

Third: The establishment of "the Temporary Secretariat for the Arab Roundtable on SCP". The Arab road map for implementing the FYP10 has recommended that this Secretariat should be transformed into a more stable regional institutional framework through the establishment of the Executive Board of the Arab Roundtable on SCP. Five Arab regional meetings were held so far on SCP in 2008, 2009, 2011, and 2013 (Table 2). The most prominent outcomes of these

[6] Arab Regional Strategy for Sustainable Consumption and Production. 2009 http://www.unep.org/10yfp/Portals/50150/downloads/Arab%20SCP%20Strategy.pdf

[7] Roadmap for Implementation of the 10-year Framework of Programs on sustainable consumption and production in the Arab region. http://www.unep.org/10yfp/Portals/50150/downloads/Roadmap_10YFP_Arab.pdf last accessed June, 29 2016.

[8] Roadmap for Implementation of the 10-year Framework of Programs on sustainable consumption and production in the Arab region. http://www.unep.org/10yfp/Portals/50150/downloads/Roadmap_10YFP_Arab.pdf last accessed June, 29 2016.

meetings are: the SCP strategy, the establishment of the temporary Secretariat for the Arab Roundtable on SCP, and the Roadmap for the Implementation of a 10-year Framework of Programmes on Sustainable Consumption and Production in the Arab Region in August 2013.

Table 2: List of Arab regional meetings on SCP

Meeting No.	Date and location	Main outcome
1st meeting	17-19, 2008, United Arab Emirates	identifying regional priorities on SCP to contribute to a regional action plan
2nd meeting	September 27 -29, 2009, in Cairo, Egypt	Arab Strategy on SCP was discussed and was subsequently approved by CAMRE A temporary Secretariat for the Arab Roundtable on SCP
3rd meeting	26th to 27th of January 2011 Cairo, Egypt.	Meeting concluded that SCP is essential to ensure the effective transition towards a Green Economy; and recognized UNEP as a catalyst for the transition to a Green Economy in the context of sustainable development and poverty eradication
4th Roundtable Meeting "Putting 10 YFP on SCP into Action"	17-18 June 2013; Cairo, Egypt	Road Map for implementing 10YFP in the Arab Region
10YFP Capacity-building workshop for the Arab Region	16-17 December 2013, Rabat, Morocco.	Capacity Building workshop

Fourth:The League of Arab States is starting to integrate the nexus framework notably addressing water, energy, and food into its future plans and commitments towards sustainable development in the Arab Region. A new document was recently published by UN-ESCWA on the water, food and energy security Nexus on the Arab region laying the ground for options that can contribute to food, energy and water security combined. Furthermore, the League of Arab States is pursuing activities on the water, energy and food nexus through the Arab Ministerial Council on Electricity and the Arab Ministerial Water Council.[9]This nexus will result in strong contribution to SCP patterns in agricultural and food production and consumption patterns.

1.3.2. SCP at the national level:

The Basic Palestinian Law[10] integrates sustainable development; it identifies "well balanced and clean environment is a right to current and future generations". This was further elaborated with the development of the environmental law in 1999[11]; where it addresses both production and

[9] Economic and Social Commission for Western Asia (ESCWA). 2015. ESCWA Water Development Report 6: The Water, Energy and Food Security Nexus in the Arab Region. Beirut 2015.
[10] Basic Law. Official gazette – Palestinian Facts – special issue, July 2002. page 5-48.
[11] Palestinian National Authority (2000) The Law Concerning the EnvironmentOfficial gazette – Palestinian Facts – February, 2000. page 38-70.

consumption side, through articles aiming at reducing pollution, protecting the environment, reduction of waste, enhancement of waste recycling and reuse, mainstreaming environmental consideration in the social and economic developmental plans, and focuses on awareness and environmental information to enhance and increase public awareness and consciousness about environmental aspects. This was supported with an EIA policy that was enacted in 2000[12].

Nevertheless; the environmental law and the right of future generations identified in the basic law, were not able to achieve the results required; be it on the SCP front or other environmental issues. Several obstacles and challenges have lead to this results (see Palestinian report on Sustainable development (2012))[13]; including internal institutional factors as well as external factors related to the presence of the Israeli occupation and continuation of deliberately utilization of Palestinian natural resources at the expense of the Palestinian environment, while denying this right to the Palestinians.

Therefore, at the Palestinian level; any development on the SCP should take into considerations these threats and obstacles and work on : 1) improving the institutional framework to achieve the required environmental objectives; and 2) identifying priority areas and measures that lead to the achievement of sustainable development in a manner that it "*reflects the determination of the Palestinian people to remain on their land and continue to pursue their livelihoods, supports the transition from unviable development under military occupation to development for endurance and survival*"[14].

Several major developments took place on the institutional level within the last year:

First: Establishment of a "National Team" to lead and coordinate the national efforts to implement the SDGs:**[15]:** A national team was established on February 2016; which is composed of the Ministerial Cabinet, fourteen governmental agencies; three members from civil society, two members from private sector and two experts in sustainable development. Recently, two additional ministries were added to the team. The Ministerial Cabinet that is also undertaking the role of the secretariat of the National Team. The National Team was mandated with the following:

1) Contribution to the publication and creation awareness about the SDGs.
2) Discussion and elaboration of the national priorities for SD, and ensuring that SDGs are integrated within the national plans.

[12] EQA (1999); Environmental Impact policy. Ministerial Council approval in resolution No: 27-23/4/2000.
[13] Sustainable Development under Israeli Occupation: Achievements and Challenges. Palestine's Report to the United Nations Conference on Sustainable Development, Rio de Janeiro, 20 - 22 June 2012.
[14] ARIJ (2011). The Status of the Environment in the oPt – A Human Rights Based Approach, 2011.
[15]Ministerial cabinet decision on 16 February 2016 to Establish a national Team to Lead and Coordinate the national efforts to implement the United Nations Plan for Sustainable Development 2030.. Decision No. 09/90/17/MC/RH. (م.و./ر.ح/17/90/09)

3) Coordination and communication with all relevant partners, and mobilization of resources to achieve the SDGs and enhance cooperation between various national and international partners.
4) Coordination the preparation of the report on SDGs' achievements.
5) Follow up and supervision of the implementation of the SD plan; report preparations and provide guidelines and advice on the subject.
6) Establishment of specialized working groups as a liaison with the decision making at the national level.

The decree assigned PCBS as the leader and the coordinator of all national efforts to localize SDG indicators, their monitoring, and provision of data for their measurement in cooperation with relevant agencies.

Second: Integration of SDGs in the national planning and budgeting[16]: The decree on establishment of the National Team has mandated the integration of SDGs in the national planning and budgeting. The decree came at the time, when preparation for the new governmental cycle is starting.

Third: The change of governmental thinking about the environmental sector from a standalone subsector of the infrastructure to a cross cutting sector: This change in governmental thinking about the environment from a sectoral approach to cross sector approach has been reflected in the planning process. Since the environmental strategy is now a cross-cutting one; EQA is in the process of finalization environmental policies for the various sectors. These policies will be submitted for the Ministerial cabinet for approval and will become binding for the various sector to integrate these policies in their planning process.

Fourth: Palestine became a member in the UNFCC, effective as mid march 2016. As part of the becoming a member of the UNFCC, the following developments took place:

1) The appointment of EQA as the **National Designated Authority**for the "Green Climate Fund"[17].

2) Development and drafting of the Initial National communication report: Sate of Palestine – vulnerability and Adaptation. As part of the Initial National Communication report; adaptation measures were identified for the following: agriculture, coastal and marine zones, energy, food, gender, health, industry, terrestrial ecosystems, tourism, urban and infrastructure, waste and wastewater, and water. The report has concluded with Identification and prioritization of adaptation options, and concluded with the national action plan for climate change adaptation.

[16]Ministerial cabinet decision on 16 February 2016 to Establish a national Team to Lead and Coordinate the national efforts to implement the United Nations Plan for Sustainable Development 2030.. Decision No. 09/90/17/MC/RH. (م.و./ر.ح/17/90/09)
[17]Ministerial cabinet decision on 29 March 2016 to appoint the Environment Quality Authority as the National Designated Authorityfor the Green Climate Fund. Decision No. 02/96/17/MC/RH. (م.و./ر.ح/17/96/02)

It is important to note that agriculture sector climate change adaption costs is more than one third of the total costs of the adaptation plan (about 1.2 billion USD); that has addressed a total of 12 sectors addressed. If we add the adaptation measures related to utilization of nonconventional sources for non-domestic purposes (i.e. agriculture), food, and food industries; then the total cost for food, and agriculture (including food production) would be about half of the adaptation cost; i.e. about one 1.7 billion USD. The process for development of the adaptation measures and identification of vulnerability were conducted in a participatory approach, and has been discussed extensively with the relevant stakeholders. Therefore, identified adaption for the coming five years and relevant to the priority areas in the SCP and hence were taken into consideration in the development of the national action plan on SCP.

1.4. Institutional Framework for SCP-NAP Development Process

SCP principles have been included in the National Policy Agenda development early in the process. The policy interventions identified for the upcoming planning phase 2017-2022, has taken into considerations aspects relevant to SCP. The SCP action plan will follow the same duration of the governmental planning; i.e. it will be 2017 to 2022. This will facilitate its integration within the national planning. Furthermore, SCP action plan is being developed in parallel to other national plans and strategies, giving an opportunity for integration with other strategic plans under development. In addition to that, EQA will integrate the SCP NAP in its environmental cross sectoral strategy for the years 2017-2022.

The development of the action plan in the priority sectors was developed in consultation with stakeholders at early stages; identified outcomes and initiatives was done in a participatory approach; leading to high possibility of integration in their sectoral plans under development.

EQA is a member of the National Team responsible for leading and coordination of the efforts to achieve the Sustainable Development Goals (SDGs) by 2030. The contribution made from the development of the SCP action plan will probably be the first tangible contribution towards achieving the SDGs.

EQA is the lead institution responsible for environmental issues, as indicated in the environmental law no. 7 for year 1999; one of the law objectives is the integration of environmental protection principles in social and economic plans, and promotion of sustainable development of natural and vital resource in a manner that future generations' rights are protected. EQA has the legal mandate to ensure implementation of the environmental law.

EQA is the lead agency in the development of the SCP Action plan. Through the consultation process and through the environmental policies in various sectors; EQA will follow up on integration of environmental policies including those related to SCP in the various social and economic sectors. EQA will be responsible for reporting on achievements of the SCP-NAP. This will be based on the indicators measured and collected by the responsible agencies for the subject. These will include relevant ministries and authorities as well as PCBS.

During the development of the SCP action plan; consultation members included PCBS; the official agency responsible for statistics in the country, also the leading agencies for collecting and monitoring achievement of indicators of SDGs.EQA, through its work on Strategies and Policies is responsible for the development of the SCP Action Plan and reporting on its achievements. EQA will conduct monitoring meetings every year to discuss with the partners responsible for implementation the progress on implementation. Based on these meetings EQA will prepare an annual report on progress. Details on monitoring and evaluation are further elaborated in a Chapter Five.

1.5. Selection of priority areas

The selection of priority areas took into consideration the major challenges faced in the country; these can be summarized as: very high food insecurity with significantly higher rates among female and/or youth headed households, very high unemployment rate, with highest rates observed among women and youth; and high poverty rates. Furthermore, pollution and environmental resources are becoming under increasing pressures, such as the water resources and soil quality.

Therefore priority economic sectors should contribute to reducing food insecurity, alleviating people from poverty, creating employment opportunities, increasing women and youth inclusivity, and reducing environmental pressures and protecting environmental resources.

Four sectors were evaluated, taking into considerations energy, water, and waste as cross-cutting themes:

- Agriculture and food.
- Housing and construction.
- Manufacturing.
- Tourism.

It is important to note that for each sector to be chosen, consumer information, sustainable education and life styles were integrated in the development of the plan objectives and initiatives. This will allow considerations of the 1) Mediterranean SCP action plan; 2) Arab strategy on SCP; and 3) the Arab road map to implement 10YFP on SCP. Table 3 shows a comparison of selected priority areas (both targeted and mainstreamed) with the Palestinian National action plan on SCP (Table 3).

Table 3: Comparison between regional and Palestinian priority areas in SCP

Mediterranean SCP action plan priorities 2016	Arab road map to implement 10YFP - priority initial programs 2013	Arab strategy 2009	Palestine SCP National Action plan 2016
Food, fisheries and agriculture	Not addressed	Rural development and poverty alleviation Sustainable Agriculture was addressed as part of rural	Food and agriculture – main targeted.

		development	
Goods manufacturing	Not addressed	Components related to energy addressed in the energy for SD. Components related to water efficiency and treatment of wastewater addressed in the water for SD; hazardous waste addressed as part of waste management.	Food manufacturing – part of food and agriculture
Tourism	sustainable tourism, including eco-tourism	Sustainable tourism	Focus on eco-tourism
Housing and construction	sustainable buildings and construction		sustainable buildings and construction
Consumer information – cross cutting	consumer information	Consumer information	Cross cutting
Sustainable life styles and education – cross cutting	sustainable life styles and education	Education and life styles	Cross cutting
Energy cross-cutting	Not addressed	Energy for sustainable development	Cross cutting
Water – cross cutting	Not addressed	Water resource management	Cross cutting
Waste – cross cutting	Not addressed	Waste management	Cross cutting
Sustainable public procurement– cross cutting	Sustainable public procurement		Targeted within sustainable buildings and construction

The following criteria were utilized for identifying the priorities areas for action:

Socio- economic:

- It is important socio-economic activity; that can contribute to reduction of unemployment.
- Has a potential for increasing inclusivity of marginalized such as women and youth and can increase food security.

Environmental:

- The priority area results in significant pressures on environmental resources; thus integrating SCP could relieve pressures.
- The integration of SCP can result in protecting natural resources.
- Integration of SCP can result in this sector will contribute to the achievement of: 1) climate adaptation strategy; 2) combating decertification strategy; and 3) national biodiversity strategy.

Institutional and political

- The integration of SCP in the short term can yield successful results; i.e. areas that have institutional framework that could facilitate implementation and success.

- It is an important activity that can support the determination of the Palestinian people to remain on their land and continue to pursue their livelihoods. It has the ability to protect land and water from being illegally confiscated or damaged by Israel settlers or army.
- There is political support for SCP integration in this priority area.

The Agricultural and food sector is seen as the most important sector to focus upon on SCP during the first phase of SCP NAP development. This is because the agricultural sector is the highest contributor to food security and resilience of the population. It is characterized by high formal employment rates of women and youth as well as high informal employment. The agricultural sector contributes as well to protection of land from illegal confiscation by Israel occupation forces. Food production puts high pressure on environment; however it is the highest sector that has the potential for integrating SCP principles in its implementation. The agricultural sector alone consumes about 50% of the abstracted water resources.

Climate change will strongly impact agricultural sector, particularly food production, and will result in increased food and water insecurities; thus the Action plan for adaptation to climate change; has focused intensively on the agriculture, food, and water sectors. Furthermore, mainstreaming SCP in the agriculture has the potential for contributing to combating desertification and protecting biodiversity. Therefore, the sector will be strongly targeted in the SCP-NAP.

The Manufacturing sector is seen of the least priority at this stage in Palestine; with several obstacles to achieve SCP in it. However, food manufacturing is the second manufacturing industry in Palestine; and thus by selecting the food manufacturing to complete the food production and consumption cycle would allow planting a seed for SCP integration in manufacturing through the setting an example on the ground in the food production sector.

The tourism sector focusing on eco-tourism was seen as critical potential to create models for sustainability in the tourism sector, while focusing on protection of land from confiscation and focusing on nourishing rather the damaging an environmental sensitive locations. Tourism sector provides important direct and indirect employment opportunities for women and the poor in Palestine. Creating models of ecotourism that builds on community participation, protection of environmental resources, and promotion of sustainably produced products would be a strong start for further developing tourism in Palestine to become sustainable.

The construction sector is an important economic activity in Palestine. It is an important sector for youth employment. The employment in the construction sector is mostly characterized as informal with suboptimal conditions of occupational health and safety. The construction sector produces wastes that are disposed randomly, thus destroying the Palestinian landscape and environment. However, there is strong interest in greening the sector, which creates fertile grounds for the introduction of green public procurement of infrastructure and for the enhancement of green buildings concepts; thus focus on Green buildings and green public procurement of infrastructure will be considered in SCP NAP.

Based on the above criteria; the following sectors were identified and agreed upon:

- Tourism – with focus on eco tourism.
- Construction and housing sector with focus on Green Buildings and Green public procurement of public infrastructure.
- Agriculture and food production and consumption.

1.6. Vision and Strategic Objectives

The long term vision for sustainable consumption and production is:

- *Sustainable consumption and production patterns are systematically and explicitly integrated in the national development agenda in Palestine and are being adopted and implemented by the various stakeholders in Palestine.*

The vision is set in a manner that goes beyond the five years of the action plan. The vision has two components: one related to emphasize on planning and integration of the principles of SCP explicitly and systematically in the national development agenda, i.e. it shall be taken into consideration in the national plans of Palestine, in the strategies developed by Palestine, and in the development of programs in Palestine. While the second component is to ensure the implementation, and here it is important to notice that implementation is not restricted to selected group of actors. The implementation requires all stakeholders to be on board. Without joint efforts, progress on SCP will not be achieved.

The integration of SCP patterns in Palestine should be conducted in a manner that it contributes to the achievement of socially inclusive economy, that is based on the right of current and future generations in a well balanced clean and healthy environment, and supports the Palestinians to achieve their right of self determination, endurance and survival on their land, and leads to freedom, peace, security, human rights protection.

In order to achieve the above within the selected priority areas; the following strategic objectives were identified for the coming five years:

- Develop and widen Eco-tourism to expand business in the off season and extract additional value from seasonal tourism to ensure protection and rehabilitation of natural resources, respecting spatial, ecological, and socio-cultural carrying capacities of the destination and reducing environmental impacts of tourisms
- Promote innovation and knowledge and the Integration of practices, which enhance resources efficiency and contribute to natural and human capital protection, throughout entire planning and construction process and life cycle of a building.
- Develop, promote and implement sustainable agricultural practices, food production, and consumption in Palestine with special focus on climate smart agriculture and resource efficient production processes, in a manner that increases food security and sovereignty and ensures the right of Palestinian people to healthy nutrition and protection of natural resources.

It is important to note that in each priority area; the three aspects of SCP of the selected priority were addressed: these include issues at the production side, issues at the consumption side, and issues related to closing the loop between consumption and production.

2. Chapter Two: Mainstreaming SCP in Agricultural and Food Production and Consumption

2.1. Agricultural production in Palestine

The agricultural sector is probably the most important sector for endurance and survival of the Palestinian people. The agricultural sector provides food for many of the poor people in the country; therefore is a major contributor to food security in the country. Palestinian people suffer from high levels of food insecurity, according to the 2014 data; 27% of the Palestinian or 1.6 Million Palestinians are food insecure[18]. Prevalence of food insecurity in female headed households is higher than male headed households, with 32% and 26%, respectively[19]. Furthermore, agricultural practices could contribute to protection of the land from illegal confiscation of Israeli settlers and / or army. In addition to its importance to the food security, the agricultural is as well a major contributor for employment, especially women and youth employment. Furthermore, agricultural sector is a major contributor to export; according to PCBS, agriculture and food products accounts for 16% of total exports in 2014[20].

Agricultural contribution to GDP has been decreasing in the past twenty years, reaching less than 4%; where the West Bank (WB) contributes to 77% of the agricultural GDP[21] (Figure 2). It is important to note that the contribution to the agricultural sector in the fourth quarter forms the highest contribution during the year; as the harvesting season of many crops particularly olives takes place in that quarter. However during 2015; the political and Israeli Occupation claimed security measures have led to reduced access of people to their land, combined with an increase in the vandalized trees- it important to note that in 2015, 11,254 trees were vandalized; i.e. damaged, stolen or uprooted by Israelis,which is a the highest number since 2006[22]- has resulted in lower GDP contribution of the fourth quarter of 2015 than on average.

[18] PCBS, WFP, FAO, and UNRWA. Economic and Food security Survey 2014; cited in Food Security Sector. Food Insecurity in Palestine.
[19] PCBS, WFP, FAO, and UNRWA. Economic and Food security Survey 2014; cited in Food Security Sector. Food Insecurity in Palestine.
[20] PCBS. Total Value of Registered Palestinian Exports by SITC _R3 Divisions in 1996 – 2014. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/exp%20division%20_E.htm Last accessed July 18, 2016.
[21] PCBS. Value Added by Economic Activity and Region for the Years 1994- 2014 at Constant Prices: 2004 is the base year. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/e-navacons-1994-2014.htm Last Accessed 9.25.2016.
[22] United Nations Office for the Coordination of Humanitarian Affairs occupied Palestinian territory (OCHA). (2016). Fragmented lives: humanitarian overview 2015. June 2016. https://www.ochaopt.org/sites/default/files/annual-humanitarian-overview_10_06_2016_english.pdfLast accessed June 25 2016.

Figure 2: Agricultural Sector contribution to GDP from 1994 to 2014 (PCBS).

2.1.1. Employment in the agricultural sector

The number of workers in the agricultural sector is about 83,781 persons; contributing to 8.3% of total employment in Palestine, of these workers 10,027 work in Israel and Illegal Israeli settlements 18,300 working in Gaza Strip (GS) and about 54,700 working in the WB; totaling 73,311 persons working in the WB and GS[23]. According to the Labor Force Survey; 21,300 women are employed in the agricultural sector, of which 17,500 women work in the WB, 3,300 women work in GS, and about 500 women work in Israeli and the Israeli illegal settlements[24] (Table 4).

It is important to note that due to changes in employment definition for 2015; the number of people working in agriculture has been reduced due to the exclusion of those who are working to produce for own consumption. This mainly impacted women working in agriculture for securing their household food. This has resulted in reduction in the absolute number of women working in agriculture by 12,000 women between 2015 and 2014.

Table 4 Number of women working in agriculture (2014, and 2015)

Place of Work	2014	2015*	Change
West Bank	23,400	17,500	-5,900
Gaza Strip	9,900	3,300	-6,600
Settlements and Israel	450	500	50
*Employment definition changed.			
Source[25]: PCBS Labor Force Survey 2015			

[23] Palestinian Central Bureau of Statistics, 2016. *Labor Force Survey: Annual Report:* 2015. Ramallah - Palestine.
[24] Palestinian Central Bureau of Statistics, 2016. *Labor Force Survey: Annual Report:* 2015. Ramallah - Palestine.

Women contribute to 26% of the total employment in the agricultural sector; with 32% in the WB and 17% in GS. Furthermore, the agricultural sector is also an important contributor to youth employment, 40% and 31% of male and female paid permanent workers in the agricultural sector in 2010 were in the age group 18 to 29, respectively (Table 5).[26]

Table 5: Youth participation in agricultural sector by type of work

	Permanent not paid		Temporary not paid		Paid permanent	
	Male	Female	Male	Female	Male	Female
18-29 age group	25,444	8,802	26,663	11,504	5,520	851
All age groups working in agriculture	93,855	41,038	87,767	53,672	12,969	2,731
Percentage contribution of age group 18 to 29 years	27%	21%	30%	21%	43%	31%

Source: PCBS, agricultural census 2010/2011[27]

2.1.2. Agricultural sector and food security

In a recent survey by PCBS, it was observed that the percentage of persons aged 15 years and above that participated in unpaid activities for self consumption is 4.5%; distributed 6% in WB and 2.3% in GS; this is equivalent to 66,300 women and 26,300 men in Palestine (Table 6). Therefore the SCP NAP focused on improving conditions for agricultural production that ensures environmental sustainability and supporting the inclusivity of women and youth in agricultural production.

The agricultural sector is a contributor to food security.Quarter of the Palestinian households has gardens and that are being utilized for agricultural activities.[28]The average garden size if 204

[25] Palestinian Central Bureau of Statistics, 2016. *Labor Force Survey: Annual Report:* 2015. Ramallah - Palestine.
[26]Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.
[27] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.
[28] Palestinian Central Bureau of Statistics, 2016. Household Farming Survey,2015. Main Results. Ramallah –Palestine.

square meters; accounting in total of 48,571 Dunums; of which about 40 thousand Dunums in WB (data as of 24. March 2015). Ten percent of these households' rear animals, mostly for household consumption, and household gardens make a total of about 2.5 million trees. Ninety eight percent of households with agricultural activities conduct so for household consumption. [29]Therefore, the SCP-NAP addressed sustainable means of household food production. Considering that most grown tress in household gardens are olives, citrus, grapes, figs, and almonds (Figure 3);[30]Awareness and information sharing with households with trees should focus on the these trees.

Table 6: Number of people participating in productive activities for self consumption:

	Men	Women
Gaza Strip	8,100	9,800
West bank	18,300	56,300
	Source: PCBS Labor Force Survey 2015	

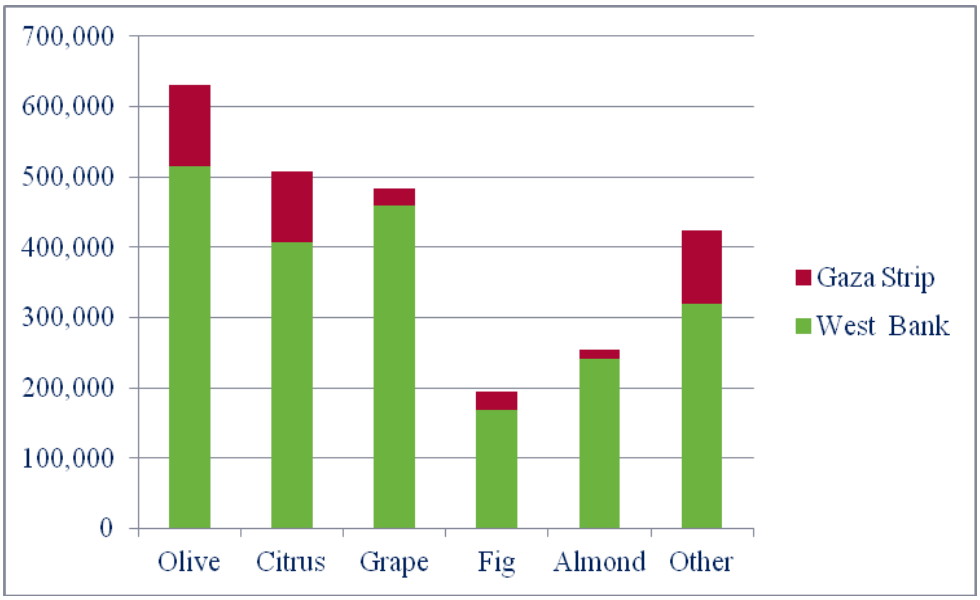

Figure 3 Total number of trees planted in home gardens by type of trees

[29] Palestinian Central Bureau of Statistics, 2016. Household Farming Survey,2015. Main Results. Ramallah –Palestine.
[30] Palestinian Central Bureau of Statistics, 2016. Household Farming Survey,2015. Main Results. Ramallah –Palestine.

2.1.3. Agricultural holdings in Palestine

The agricultural census for the agricultural year 2010/2011 has identified 110,104 agricultural holding in Palestine. Of which 71% were for plant production; 13% were for livestock, and 16% were mixed between plant and livestock. It is important to note that 71% of these holdings were producing for household consumption mainly. In a more recent survey (2013) conducted by PCBS about livestock which targeted both livestock and mixed agricultural holdings; 32,177 agricultural holdings that has live stock in Palestine were observed; of which 20% in GS.[31] Of the total agricultural holdings that have live stock, only 37.8% of them are rearing livestock only, while the remaining are mixed holdings. The percentage of agricultural holdings that is mixed of those that have live stock has increased from 56%[32] to 62.2%[33]. This important development is important as mixing live stock and plant production have higher opportunities for introducing environmental practices in the farms. The management of live stock agricultural holdings is almost exclusively managed by the agricultural household family members. Only 1.1% of these agricultural holdings hire someone to manage their holdings.

The agricultural holdings in Palestine are characterized as small size; where 75% of the holdings are smaller than 10 Dunums. [34]On the global level, food production is mainly produced by family farms, according to FAO 2014 report, family farms occupy 70 to 80% of farm land, and produce more than 80% of world's food.[35]. Therefore, creating enabling conditions to support food production of the small and family farmers is essential for food security. The SCP -NAPhas considered addressing small farmers to improve their production process to achieve environmental, social and economic co-benefits.

2.1.4. Extension services in the agricultural sector

Extension services are crucial for switching agricultural production to a sustainable one; however as per the last agricultural census 26% of holdings have not received any extension services; the Ministry of Agriculture (MoA) can reach only 10% of agricultural holdings. There is a high reliance (32% of holdings) on peer farmers in extension services, which means agricultural extension services, should be planned in a manner that it creates a snow ball of extension services through peer-to –peer extension services. The agricultural products retailers accounted

[31] Palestinian Central Bureau of Statistics, 2014, Livestock Survey, 2013, Main Results. Ramallah, Palestine.
[32] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.
[33] Palestinian Central Bureau of Statistics, 2014, Livestock Survey, 2013, Main Results. Ramallah, Palestine.
[34] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.
[35] FAO 2014. The State of Food and Agriculture: Innovation in Family Farming. Rome. 2014.

for about 8% of the provision of extension services, slightly lower than the ministry of agriculture.[36]Therefore, creating proper hubs for extension that provide the proper information to the farmers in these sale locations is an important aspect. The SCP-NAP has addressed extension services to achieve the various SCP-NAP objectives as a tool to ensure accessibility of farmers to relevant information on SCP aspects.

2.1.5. Environmental impacts of agricultural sector

Agriculture although very important for employment, food security and economic development, it utilizes natural resources and results in emissions that degrade the environment and the natural resources even those that are essential for agricultural production.

Agricultural land

The total land utilized by agricultural holdings was estimated during the agricultural census at 1,207,061 Dunums; of this land about 15% uncultivated[37]. The uncultivated land include buildings used for holding purposes, permanent meadows and pastures, pools, corridors, and non-arable land. The total cultivated land is 911,556 Dunums, of which 59% is cultivated with horticultures trees, 14% with vegetables, and 27% with field crops.[38] It is important to note that 62.9% of the arable land is located in "Area C"; 18.8% in "Area B"; and 18.3% in "Area A"[39]; making access to agricultural land difficult. Furthermore, most of the fertile agricultural land in GS is located in the "buffer zone" imposed by Israel, denying access to Palestinian farmers from reaching their land.

Water use in agriculture

The agricultural sector is the most important consumer of water in Palestine. It consumes 49% of the total water abstracted from Palestinian ground wells (2014).[40] Seventy percent of

[36] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.
[37] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine. Table 11.
[38] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine. Table 12.
[39] State of Palestine- Ministry of Agriculture. National Agriculture Sector Strategy: "Resilience and Development"2014-2016.
[40] PCBS. Variety tables of water 2014. Excel version. Table 3: Palestinian Water Wells and it's Annual Pumping Quantity in Palestine by Governorate and Type of Use, 2014. http://www.pcbs.gov.ps/site/lang__en/771/default.aspxhttp://www.pcbs.gov.ps/site/lang__en/771/default.aspx last accessed 7.28.2016

cultivated agricultural holdings are rainfed[41], making 81% of the cultivated land[42], leaving 19% as irrigated land.

The total agricultural land that is cultivated with horticultural trees is 542,363 Dunums with 11,284,963 trees, of which 88% is rain fed. Only about 2 million horticulture trees are irrigated. Of the total cultivated land with horticulture that is irrigated, 55% utilize surface irrigation, and 44% utilize drip irrigation.[43] Of agricultural holdings that produce field crops 1,356 irrigate their crops. Of the agricultural holdings that utilize irrigation for field crops, 16% use surface irrigation, 64% use drip irrigation, and 19% use sprinklers. Only 4% of agricultural land cultivated with field crops is irrigated; this is equivalent to 9,111 Dunums; distributed as 68% utilizing drip irrigation, 23% utilizing sprinklers, and 9% utilizing surface irrigation. [44] Of the total land cultivated with vegetables (127,257 Dunums); 86% is irrigated (109, 057 Dunums), with the majority of the irrigation depends on drip irrigation (93,821 Dunums). It is important to note that efficiency of irrigation depends on the methodology used; drip irrigation is highly efficient, followed by sprinklers, while surface irrigation is inefficient.

Most of the of livestock agricultural holdings depend on their water supply on the domestic water network (61.4%); while 4.8% depends on harvesting systems such as ponds, collective reservoirs and harvesting wells, and 19.9% depend on water tankers.[45]The cost of water delivered through water tanker is much higher than water delivered through other sources, thus supporting the agricultural holdings to shift from the water tankers into more economically feasible option is important from a socio-economic perspective. Switching towards alternative water sources would result in as well environmental positive impacts. Also identifying alternative water supplies for live stock other than the main water supply would support in reducing pressures on the domestic water supply.

According to climate change adaptation action plan; it is crucial to identify alternative water resources for irrigation. These could be utilizing harvested rain water, reuse of treated wastewater in agricultural production, and reduction of losses in agricultural water systems. Therefore, SCP- NAP considered utilization of alternative water resources as an important aspect in agricultural sector.

[41] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine. Table 14.
[42] State of Palestine- Ministry of Agriculture. National Agriculture Sector Strategy: “Resilience and Development”2014-2016.
[43] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.
[44] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.
[45] Palestinian Central Bureau of Statistics, 2014, Livestock Survey, 2013, Main Results. Ramallah, Palestine.

Energy use in Agricultural sector

The electricity consumption of the agricultural sector is very low, mainly due to the lack of accessibility to energy and the low technology used in agriculture. The total consumption of the agricultural sector from energy in Palestine is 1.4% of total energy consumption.[46] The total solar energy utilized in the agricultural sector is negligible; although it would be an opportunity for many of farms to introduce technology in their farm management if energy is accessible. Hence, introducing renewable energy in farms that does not have access to energy is seen an important aspect that could support improved production of agricultural holdings. Introducing renewable energy for existing systems, such as pumps for water wells, and irrigation practices, could also contribute to reduction in the operational costs of the production. According to the livestock survey in 2013, 24.8% of the live stock holdings (about 8,000) do not have access to energy; where 53% of GS live stock holdings do not have access to energy versus 17.6% in the WB[47]. Therefore, provision of access to these farmers through utilization of renewable energy would be important. Thus SCP-NAP addressed introducing renewable energy for enhanced agricultural production.

Chemicals use in agriculture and hazardous waste production

There is no information relevant to how much chemicals are used in the agricultural sector. There is a list of pesticides allowed for use in Palestine that is issued by the Ministry of Agriculture gives special permits for import of pesticides to the country, where MoA registers quantities entered for each permit issued; these permits are restricted in the sense that they integrates the total permissible quantity, type and the period for import. Therefore, the MoA has information on the total quantity of pesticides allowed to enter the country during selected periods. MoA inspects for any illegally entered pesticides, or not permissible for use, or other chemical used in agriculture that does not adhere to the Palestinian compulsory standards. These are confiscated by the MoA and stored as hazardous wastes in a temporary facility in Beit Qad station. This is done in coordination with relevant authorities including EQA. The quantity currently stored has reached about six tons, and are planned to be transferred to disposal site according Basel Convention. However, there is no management system for empty containers of chemicals, although these are characterized as hazardous waste.

Furthermore, there is no information available on efficiency and effectiveness of the use of agricultural chemicals. It is important to note, that there are several chemicals banned from entering Palestine by Israel under the claim of the “dual use”. This reduces the availability of

high quality chemicals required for productive agriculture, thus resulting in increased costs, reduced efficiency, and increased pollution.Based on the agricultural census; of the mixed and plant agricultural holdings, 66% use organic fertilizers, 35% use chemical fertilizers, 50% use pesticides, and 19% use biological control. [48] Promotion of agricultural production that uses alternatives to chemicals is another important aspect addressed in the SCPNAP.

The Ministry of Agriculture and agricultural NGOs provide information to farmers on safety of chemicals use; however the extension coverage is not sufficient. Management of chemicals from the agricultural sector is another challenge, since proper hazardous waste management is not introduced in the country. Furthermore, the knowledge and awareness of farmers is not sufficient on the use of chemicals in agriculture, which could result in abuse and misuse of chemicals by users. Hence, there is a high risk that soil in many areas is polluted with chemicals. However, considering there is no soil survey on quality of soil, it is not possible to identify hot spots of pollution resulting from the misuse of these chemicals. Although it is beyond the SCP- NAP to work on identifying such hot spots, it is important that prevention of misuse of chemicals is addressed in the SCP- NAP.

From an environmental perspective several issues should be addressed in agricultural production with regards to chemicals, these include: 1) safe use for food production, 2) occupational health and safety, 3) consumer information on chemicals, 4) alternatives to chemicals utilized in agriculture, such as biological control and utilization of organic fertilization, 5) efficiency of use of chemicals, 6) proper handling and disposal of empty containers of chemicals, and 7) proper disposal of hazardous waste generated from expired chemicals.

Waste production from agricultural sector

It is important to note, that there are no estimates of the quantities of wastes generated from agricultural production. However, it is known that the agricultural sector produces a variety of waste types including: 1) organic fraction resulting from plant production, 2) manure, 3) hazardous waste including empty chemicals containers and chemicals that do not match specifications, 4) plastics, 5) dead live stock, 6) biologically infectious and medical other waste resulting from veterinary services, and 7) infected materials and culled animals resulting from controlling an epizootic or enzootic diseases. Furthermore, produces that gets wasted in the post harvest process is also high. In a report by FAO; more than 50% of the food produced worldwide is wasted. In developing countries, this is mainly concentrated at the post harvesting stage. Introducing improved post harvesting agricultural products handling, including the introduction of proper storage, transport and distribution would lead to environmental benefits through reduction of food waste, which can be translated to savings of water, energy, soil degradation,

[48] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.

fertilizers, and human capital, while leading to increased economic benefits. This is even more critical for small farmers for which their household food security is dependent on the harvest. While unfortunately there are no data available on wastes generated from agriculture; there are a lot of potentials for integrating measures to reduce waste production in the agricultural sector. Furthermore, measures necessary to ensure proper management of waste that is generated is critical for sustainable agricultural production.

In Palestine compost production is not regulated, there are no compulsory specifications to label compost produced from municipal waste in Palestine, this is combined with insufficient environmental regulations on composting facilities. Furthermore, while about 66% of the farms utilize organic fertilizers, this not necessarily properly treated. It is a common practice to apply untreated manure on land. Hence, the SCP-NAP addressed several aspects in the production of organic fertilizers and their use including: 1) standards for product (compost) produced from agricultural waste and from municipal waste); 2) environmental regulations for compost production; 3) provision of extension services to farmers, including on availability, quality, benefits, and use; 4) provision of awareness to agricultural sales point on locally produced compost, 5) coordination with humanitarian agencies on the distribution of certified, locally produced compost as part of their humanitarian activities targeting agriculture.

Efficiency of resource utilization in agriculture

The selection of crops in agricultural production is critical for improved resources efficiency in agriculture; first of all, it is important to identify agricultural crops to be planted for import and export. It is important to focus on virtual water import rather than export; therefore crops that consume a lot of water should be reduced from the production; and should be only utilized for local food consumption. Furthermore, it is important to introduce measures that maintain and improve soil quality and moisture through the agricultural practices. With climate change is it also important to introduce draught resistance crops and in GS Coastal line increased attention to salinity tolerant seeds and varieties would be given. Based on the agricultural census; of the mixed and plant agricultural holdings only 25% use treated and improved assets (seeds, transplants, tubers).[49]

There are no indicators showing the efficiency in agricultural sector; however, most reports indicate that there is a big room for improvements in efficiency in terms of use of nutrients, water, energy, and waste production. In order to measure progress on SCP in production side it is critical to consider efficiency indicators in the agricultural sector, examples of these indicators would be: water consumed per crop produced, mineral fertilizers use per crop produced or per Dunum, waste generated per crop produced, waste generated in the post harvesting stages, virtual

[49] Palestinian Central Bureau of Statistics, 2011, Agricultural Census 2010, Final Results - Palestinian Territory. Ramallah, Palestine.

water Import/export. Hence, SCP NAP considered institutionalization of efficiency indicators in the agricultural sector statistics.

In order to be more effective in introducing SCP principles in agricultural production and considering that the climate adaptation action plan has identified selected crops as highly vulnerable to climate change and has been identified in the priority for addressing; thus it is recommended to introduce the concept of greening value chains in crops that are in focus.

2.2. Background on food manufacturing

The food manufacturing has high importance in Palestine for various reasons, including the direct relationship between food processing and agriculture, its importance to the food security, and its contribution to employment. According to the Palestinian Central Bureau of Statistics, food and beverage manufacturing is the second largest industrial sector in Palestine in terms of employment. It contributes to 15% of manufacturing sector employment (2014). In 2014; PCBS reported 2,292 enterprises. These enterprises contribute to 25% of the Gross added value of the industrial sector.[50]The sector is the most important industrial sector in terms of its contribution to the output and the gross added value.

The majority of food and beverage production is being utilized locally, distributed as 77% in the WB, 12% in GS, 6% exported to Israel, and 5% exported to other markets. The food processing industry [51]contributes to only 50% of the local market; the remaining food is imported from other countries.

The production inputs for the food manufacturing was estimated at 494,643,300 USD in 2014; distributed as follows: 84% on raw materials, 7% on fuels and oil; 3% on electricity, 1% on water; and 6% on other items. It is important to note that 50% of the raw materials consist of locally produced agricultural products.[52]

[50] PCBS. Number of Enterprises and Employed Persons and Main Economic Indicators in Palestine For Industrial Activities , 2014. http://pcbs.gov.ps/Portals/_Rainbow/Documents/Number%20of%20Enterprises%20and%20Employed%20Persons%20and%20Main%20Economic%20Indicators%20in%20Palestine%20For%20Industrial%20Activities%20,%202014.htm last accessed 27.7.2016.

[51] Palestinian Federations of Industries (2009). The Current Status of the Industrial Sector in Palestine.

[52] Palestine International Chamber of Commerce and Friedrich-Naumann-Stiftung für die Freiheit (2014). International trade and Palestinian agro-industry sector. http://www.iccpalestine.com/resources/file/publications/International%20trade%20&%20Agro%20Industry%20sector-%20final%20draft%20-%20July%209,%202014.pdf last accessed 27.7.2016.

The food and beverage manufacturing sector consumes 25.5% of all fuels and oils consumed in the industrial sector, 16.7% of electricity consumption in the industrial sector, and 24.8% of the water consumption in the industrial sector.[53]

2.3. Background on food consumption and health

The average monthly household expenditure and consumption on food makes 34% in the WB and 40% in GS of total household expenditure and consumption (2011).[54]Based on a survey conducted by ARIJ in 2015; the household consumption on agro-commodities in the WB is divided as follows: 42% on field crops, 40% on vegetables; 14% on fruits, and 4% on olive products.[55]

Many Arab countries, including Palestine are increasingly facing the triple burden of nutrition problems. There is increased trend towards unhealthy choices of food, and the move towards "westernized" food consumption patterns that is resulting in increased obesity and diet-related non-communicable diseases, combined with micronutrient deficiency. This is combined with under nutrition due to poverty among children. Palestine is characterized by being in the in early nutrition transition with moderate levels of overweight and obesity, moderate levels of undernutrition in specific population and age groups, and widespread micronutrient deficiencies. [56] In 2013, the Ministry of Health (MoH) with other several actors conducted a cross sectional micronutrient study, which identified major problems related to micronutrients deficiency related to iron, vitamin A, and iodine.[57] Furthermore, the study identified zinc, vitamin D, and folic acid as emerging critical nutrients. The study has as well identified the increased incidence of obesity and dietary -related non - communicable diseases. Based on this study, the MoH has prepared a National Nutrition Policy, Strategies & Action Plan (NNPSAP) for the years 2015-2017. As part of this strategy the MoH has identified several goals and objectives, covering various aspects to the three nutritional problems in Palestine, these are 1) micronutrients deficiencies; 2) obesity and diet - related non - communicable diseases; and 3) malnutrition. Promotion of nutrition

[53] Palestinian Central Bureau of Statistics, 2015. Economic Surveys Series 2014: Main Results. Ramallah-Palestine.
[54] PCBS. Average Monthly Household Expenditure and Consumption in Jordanian Dinar (JD) in Palestine by Commodities, Services Groups and Region, 2011. http://pcbs.gov.ps/Portals/_Rainbow/Documents/Expenditure_2011_e.htm last accessed 27.7.2016
[55] The Applied Research Institute – Jerusalem (ARIJ). 2015. Food Production-Consumption Assessment to Improve Sustainable Agriculture and Food Security in the West Bank- Palestine - Palestinian Household Consumption Trends for Agro-Commodities. March 2015.
[56] Nahla Hwalla, Rachel A. Bahn, and Sibelle El Labban (2015) Sustainable Food Consumption in Arab Countries. In Ibrahim Abdel Gelil, and Najib Saab (Eds.) Arab Environment 8: Sustainable Consumption for Better Resource Management.
[57] State of Palestine, Ministry of Health, primary Health Care & public Health General Directorate, Nutrition department. Launch of Palestinian Micronutrient Survey (2013) Results.

dietary diversification through behavior change to address issues related to micronutrients and obesity, and the move towards healthier life styles is important in SCP -NAP.

The governmental sector is involved in the procurement of food in several ways: 1) procures food provision services in hospitals; 2) procure food items for food preparation in governmental compounds, such as police and various security forces, and 3) some boarding schools. While governmental schools do not provide a meal for the children, each school procures its canteen service, which is regulated by theMinistry of Education and Higher Education (MoE) and the MoH. Therefore, it is seen important in the SCP NAP to introduce greening governmental procurement to integrate sustainably grown food that contributes to the improved dietary nutrition through these services.

Unhealthy food consumption patterns results not only in increased nutritional problems but also in increased environmental problems. For example, red meat production consumes 15.5 cubic meter of water per each kilogram of red meat. The consumption requirement for a healthy diet is 5.2 kilogram per capita per year, in comparison to meat availability of 7.7 kilogram per capita per year in Palestine. Savings of water from reducing red meat consumption to the dietary requirement would result in water savings by178 million cubic meters a year.[58] Therefore SCP-NAP addressed awareness of the population about choices in food consumption in terms of health and environment.

Furthermore, consuming food that is locally grown results in reduced green house emissions associated with transportation. Hence, promotion of locally produced foods will result in increased environmental and economic benefits. Promotion of organic food consumption is another way for enhancing sustainability of food production and consumption systems. Utilization of organically grown food is important aspect for people due to health and safety of food; in addition many consumers of organic food sees improved taste and respect for tradition as a motivation to choose organic foods. Thus promotion of organic food among consumers is an aspect addressed in the SCP NAP.

Ensuring good quality of food and its safety are essential to maintain the health of the population, and is important to reduce its wasting. While there are several Palestinian standards for food, including some compulsory standards, ensuring that standards implementation is taking place is important. In addition to the Palestinian standards, several international standards have already been established in the country; these are related to hazard analysis critical control point (HACCP); good agricultural practices (GAP) (Global, Arab and Palestinian) &good handling practices (GHP), sanitary and phytosanitary (SPS) measures, fair trade, good practices in

[58] Nahla Hwalla, Rachel A. Bahn, and Sibelle El Labban (2015) Sustainable Food Consumption in Arab Countries. In Ibrahim Abdel Gelil, and Najib Saab (Eds.) Arab Environment 8: Sustainable Consumption for Better Resource Management.

manufacturing (GPM), and organic agriculture. Furthermore, the Arab region is currently working on development of Arab GAP, which will facilitate the trade in agricultural products within the region, it is important that Palestine is aware of this GAP to facilitate import of only certified agricultural products that are certified according to Arab Gap, and to ensure that its export from agricultural products adheres to the Arab GAP in order to facilitate trade.

Therefore the SCP-NAP addressed the provision of support to producers, transporters, and retailers in maintaining safety and quality and increasing the certification of food produced, combined with increased awareness of consumers about advantages of selecting certified food items.

2.4. Closing the loop between consumption and production

Closing the cycle between production and consumption is critical, several activities indicated above will lead linking the two; however there are still several limitations in ensuring this link such as: 1) availability and accessibility to funds from producers, particularly small ones to introduce SCP measures, 2) accessibility and availability of markets for sustainably produced local food, 3) complexity of adherence to certification requirements for small farmers, particularly in terms of documentation, know how, and capabilities, 4) insufficient knowledge of advantages of improved practices in agriculture that could lead to economic and environmental benefits, 5) insufficient data on important indicators to measure improvements on SCP, related to resource utilization and waste generation in agricultural production as well in food manufacturing, and 6) limited research on various aspects of SCP elements; including on a) environmental technologies that could achieve increased efficiency and effectiveness in agricultural practices, b) nexus opportunities for food, energy and water, c) feasibility of greening value chains, d) introducing SCP in various agricultural production, e) agricultural waste management, f) market research for sustainably grown products, g) climate adaptation technologies in agricultural sector, h) efficiency and effectiveness of practices that contributes to sustainable production of food and i) behavior of population and farmers. Therefore, SCP – NAP addressed the above issues to move towards closing the loop between sustainable production and sustainable consumption.

2.5. Strategic and operational objectives

Strategic Objective: Develop, promote and implement sustainable agricultural practices and sustainable food production and consumption in Palestine with special focus on climate smart agriculture, resource efficient production processes; in a manner that increases food security and sovereignty and ensures the right of Palestinian people to healthy nutrition and protection of natural resources.				
Operational objective 1: Develop, promote and implement sustainable agricultural practices in Palestine with special focus on climate smart agriculture, resource efficient agricultural processes, and protection of natural resources through implementation of best environmental practices and technologies in the growing, harvesting, and post harvesting processes.	**Operational objective 2:** Develop, promote and implement best environmental and health practices and technologies in food manufacturing practices in Palestine.	**Operational Objective 3:** Develop policy and legal framework to promote sustainable agricultural production and sustainable food production and consumption with special focus on conservative agriculture, and empowering small farmers and their cooperatives.	**Operational objective 4:** Sensitize and educate food producers, retailers and consumers, and support the development of appropriate market tools and information, to promote green value chains in agriculture, as well as food processing, distribution, and consumption.	**Operational objective 5:** promote innovation, knowledge and participatory research that engages farmers, civil society organization, researches and policy makers on aspects related to sustainable agriculture and food production practices and technologies with particular focus on improved resource efficiency, minimizing environmental impacts, protecting natural resources, and improving the livelihood of the farmers.

Outcomes identified:

Outcome 1:Enhancement of the use of additional and alternative water resources for agricultural purposes including sustainable community level irrigation schemes and infrastructure

Outcome 2: Increased resource efficiency in live stock production

Outcome 3: Increased resource efficiency in plant production systems

Outcome 4:Increased accesses to renewable energy in agricultural holdings and shifting to renewable resources

Outcome 5: Reduction in post harvesting waste

Outcome 6: Improved management of agricultural waste.

Outcome 7: Food manufacturing industries are implementing best practices

Outcome 8 Policies and legal frameworks for SCP in agricultural and food are developed.

Outcome 9: Awareness and capabilities of stakeholders is increased on aspects related to sustainable agricultural production.

Outcome 10: Awareness and capabilities of stakeholders is increased on aspects related to sustainable food manufacturing

Outcome 11: Awareness and capabilities of stakeholders is increased on aspects related to sustainable food consumption

Outcome 12: Knowledge and innovation on Sustainable agriculture production is available and accessible to stakeholder

2.6. Interventions and outputs identified

It is important to note that interventions has been identified on various levels, at the policy level to create an enabling environment for integrating sustainable consumption and production principles, at the implementation level to support agricultural holdings and food manufacturing in moving towards sustainable production patterns, and at the consumers level by increasing knowledge and awareness and behavior change to create demand for sustainable food products.This was supported by interventions that would promote innovation and knowledge sharing.

At the agricultural holdings level several issues were addressed as will be seen from below, including the integration of various interventions in each agricultural holdings is what will switch the production patterns towards sustainability. Therefore, it is foreseen that projects to be developed on SCP in the agricultural sector would integrate a combination of interventions.

In order to move towards green and climate smart agriculture in plant production, a farm would have to implement a combination of interventions, such as improved irrigation practices, increase

in use of alternative water resources, introducing precision irrigation and precision fertilization, utilization of organic fertilization, utilization of saline and /or drought tolerant seeds and varieties, introduction of proper waste management, obtaining certification for the farm, utilization of renewable energy, receiving extension services on SCP principles implementation, introducing proper operations and maintenance of new technologies and infrastructure, identification of linkages to marketing, introduction to biological pest control and safe handling of chemicals if they have to be used, utilization of insurance systems, and creating linkages with livestock production.

When dealing with live stock production on the farm level; implementation of SCP would integrate a combination of factors including supporting the mixing of production between plant and livestock, use of harvested water, manure management, provision of access to energy through utilization of renewable energy, ensuring proper animal nutrition through provision of improved composition of forage that contributes to reduction of mortality and morbidity and reduction in methane emissions, introduction of proper management of veterinary wastes, rehabilitation of pastures and introduction of sustainable pasture management.

2.6.1. At the agricultural production level

Increase in the use of additional and alternative water resources include:

1) Investments to take place in water harvesting technologies both individual and communal, with special considerations for agricultural holdings depending on water tankers. The this could include a variety of water harvesting technologies such as simple cisterns, water storage tanks, ponds, small dams, etc.. It is envisaged that though the plan implementation, more than 1,000 farmers could introduce these systems, resulting in increase in harvested water with about 600,000 CM of water, to be utilized on 4,000 Dunums. Any infrastructure development at the farm level, should come with extension services and training on proper management and maintenance of the developed infrastructure.

2) Use of treated wastewater in agriculture: there are several treatment plants which could within the coming five years provide treated wastewater for agricultural sector; thus such treatment plants would be either currently operational or under construction. Hence this intervention will focus on rehabilitating of agricultural land in the proximity ofthese wastewater treatment plants (wwtp), installation of conduit pipelines, storage units, and pumping stations. It is anticipated that during the plan time frame, about 11 million cubic meters could be utilized within the coming five years, which would provide irrigation water for more than 8,000 Dunums. Interventions for re-use wastewater should be associated with extension services to farmers utilizing this water to ensure that only permitted crops are irrigated utilizing this water. Furthermore, maintaining clearly distinguished pipeline, colour purple as per Palestinian specification is crucial for distinguishing the water from fresh water; this should be connected with continuous monitoring of the quality of treated wastewater.

3) Rehabilitate agricultural water sources: several of the existing water sources such as well canals and springs require rehabilitation to reduce losses and ensure optimal operations. It is envisaged that mapping of community agricultural water systems will be conducted, based on which priority locations for rehabilitation will be identified. The rehabilitation will target at least 30 wells, installation of 100 kilometres of water networks, rehabilitation of ten springs and six kilometres of canals. As a result, it is expected that water losses will be reduced by 10%. It is important to integrate proper management systems for the infrastructure that will be rehabilitated, including proper monitoring and operations. Training and identifying necessary institutional arrangements for operations and maintenance would be required to ensure sustainability of newly installed and rehabilitated infrastructure.

Improved efficiency in plant production systems include

Efficiency in production means utilization of the optimal level resources to achieve the required production; this should be accompanied by reduction of waste and hazardousness of waste. Therefore optimization of water and fertilizers use is critical to achieve efficiency in plant production. Interventions that lead to increasing the efficiencyof water use, such as introduction of computerized irrigation, use of drip irrigation systems are important aspects of the plan. It is important to note that availability of energy at the farm level is critical for such systems; hence this should be combined with introduction of renewable energy as discussed on renewable energy. Furthermore, promotion of agricultural practises that leads to preventing losses of soil moisture and organic matter is integrated in the plan; several practices could be applied such as soil profiling by conducting terraces or Gabions in the sloping area aiming at increase soil moisture, increase crop productivity, and reduce soil erosion. Other good practices to be promoted are related to conservation tillage rather than conventional ploughing of land, which does not result in soil compaction and loss of soil moisture and nutrients. Furthermore, choice of plants is critical for efficient water use; it is important to select the plants that are drought resistant and in GS Coastal line it should be as well saline resistant. This means; that the plants will have better resiliency and such seeds and varieties would require less water.

Optimum fertilization is critical for plant production; as too much nutrients results in their washing off which results in pollution and wasting resources. Furthermore, the production process of chemical fertilizers has significant environmental footprints. Thus the plan is focusing on two aspects: precise fertilization according to the plant needs to reduce wash off and wasting of resources. At the same time the shift towards organic fertilization is foreseen. This is also to be applied based on the plants needs.

Health of the plants is critical; because the loss of crops, vegetables, or trees, means that all the water and nutrients consumed in the production are wasted. Furthermore, losses of crops have negative economic and social impacts. Thus the plan has addressed pests and disease management of plant as integral part of efficiency. Two issues are addressed with this regards: 1) continue and expand the use of traps for the main crops produced in Palestine is critical and 2)

identifying biocides and utilize integrated pest management principles are critical to reduce chemicals use. Chemicals have negative impact on the environment and could have impact on the food to be consumed if not properly controlled. Furthermore, in some cases utilization of chemical pesticides might be required if traps and biocides were not sufficient; hence, it is important to ensure that chemicals use are controlled and properly managed in a manner to ensure occupational health and safety, ensure food safety, and ensure environmental protection. An integrated approach on the subject is foreseen by conducting training of trainers for extension workers at MoA and NGOs on the pathogens and pests control of plants. This to be associated by ensuring that there is proper control for testing of residuals pesticides in the food produced as well as by conducting laboratory tests to identify pathogens at hand, to prescribe the proper actions. An important aspect of ensuring proper control and management of pestsand pathogens is to assess the impact of any new diseases and pests on the production. It is foreseen in the plan that an assessment for at least 5 pests should be conducted.

This efficiency cycle can only be complete when the food produced in the field is not wasted; thus ensuring that farmers have access to markets is critical way to ensure reduction in losses, this is combined with increasing their access to cold storage and transportation, and proper packaging. Therefore, the introduction of new post harvesting systems is foreseen in the plan with special focus on cooperatives. Such systems would result in socio-economic benefits as well as significant environmental positive impacts, as it will reduce the waste of food products.

Training of trainers and introduction of extension services on various aspects of sustainable production is an integral part of implementing sustainable practices.

Improved efficiency in post harvesting system:

As discussed above post harvesting systems are very important to ensure reduction of wasted food; however if not properly designed and operated they can be high consumers of water and energy. Thus the following is foreseen as part of the SCP NAP:1) introduction of renewable energy for operations for post harvesting systems, 2) conducting water and energy audits for post harvesting systems and implementing changes to achieve optimization of water and energy use in these facilities, 3) development of operational procedures that takes into considerations energy and water efficiency, while ensuring food safety, and 4) identification of the optimum packaging and handling procedures to reduce waste and maintain its food safety until it reaches the consumers.

Increased access to energy through utilization of renewable energy

Utilization of energy in the agricultural sector is limited; this is partially due to the lack of access to energy and partially due to low technologies used. Interventions to increase access to energy through renewable energy are addressed in the plan: Sifting energy sources for operating water infrastructure to renewable energy is foreseen in the plan; where at least 25 main agricultural water infrastructures would be equipped with renewable energy. Furthermore, a big percentage

of live stock agricultural holdings do not have access to any energy; thus it is foreseen that at least 200 holdings will be supported to access energy through installation of renewable energy infrastructure. Furthermore, energy utilization from biogas is a potential source of energy for live stock farms, where manure could be digested to obtain energy. Considering that the implementation of such projects is still new; the plan has concluded with the development of two pilot projects; one in the WB and another in GS for generation of energy through anaerobic digestion of manure, with minimum capacity of one ton of manure per day.

Improved waste management resulting from agricultural activities:

Interventions identified for various waste streams that results from agricultural production; these are: 1) veterinary waste, 2) hazardous wastes, 3) manure, 4) organic waste fractions with potential of introducing as part of fodder.

1) Development of Veterinary waste management systems:

The following interventions were identified in veterinary waste management:

- Introduce proper waste management procedures in agricultural laboratories to cover all laboratories operating in the country.
- Furbish at least 20% laboratories with sterilization equipment for waste and support other laboratories to utilize central systems.
- Introduce a system for collection of chemical wastes from veterinary laboratories and their transport to designated facilities. This includes identification and training of four vehicle operators that can do the job according to the requirements.
- Introduce proper management veterinary waste resulting from clinics, stationary and mobile clinics.
- Introduce procedures and protocols for management of materials and culled animals as a result of diseases that takes into considerations environmental issues.
- Introduce a system for implementing proper procedures for management of dead animals.

2) Development of a system for proper handling and management of agricultural hazardous wastes

The following interventions were identified:

- Develop the system for collection of hazardous waste resulting from agricultural sources, including update the guidelines for management of chemical waste and train extension services' providers on the new guidelines.
- Introduce collection of chemicals containers to be treated as part of the hazardous waste streams.
- Develop the system for transport of agricultural hazardous waste to temporarily facilities.
- Ensure that all hazardous waste is transported from temporarily facilities into licensed disposal/treatment facilities according to Basel agreement.

3) Development of pilot projects for utilization of selected wastes in animal fodder production

There is potential to utilize selected fraction of organic wastes generated from agricultural sector into production of fodder, therefore piloting of three potential alternatives is foreseen.

4) Improvement in the utilization of treated manure in fertilization

Most of manure is applied to land with minimal treatment; thus, it is foreseen that development of 5 composting projects that could result in pretreatment of manure prior to land application.

5) Support in developing and implementing manure management and treatment for cooperatives and big agricultural holdings

Big cooperatives and big live stock producers generate high quantities of manure, thus management plans for manure, and their treatment is critical in these agricultural live stock producers. Thus, introduction of proper management plans for their manure, including its treatment is foreseen important.

Improved efficiency in animal production

Live stock has significant negative environmental impacts on the environment, thus it was foreseen critical to address efficiency issues to reduce these impacts. Improvement of health of animals would result in increasing the productivity of animals and optimization of resources use.

One critical aspect of improving the conditions of live stock production is access to energy, lack of access to energy restrict the options of productions due to lack of refrigerators. Furthermore, agricultural holdings could store medications for their livestock in suboptimal conditions due to lack of cold storage spaces which results in limited efficacy of these medications.

In sufficient proper sheds in live stock agricultural farms results in subjecting animals to harsh weather conditions, which in turn in impact their health particularly the new born. Thus supporting farmers to develop their shelters for new born is an important mean of improving the health of the animals and thus reducing their mortality and morbidity thus reducing the wasted resources. About 750 farmers per year would be supported with shed improvement through the plan.

In general it is foreseen that expanding extension and veterinary services to live stock agricultural holdings would be critical for ensuring proper health, this should be combined with increasing vaccination rates to prevent diseases. Development of sustainable veterinary services that is accessible by farmers is critical aspect that is addressed in the SCPNAP.

Bedouin communities are part of the live stock agricultural holdings, there are 54 Bedouin communities. In order to ensure that these Bedouin communities can sustain their way of live, it would be important to ensure that their assets are protected. Hence, it is foreseen that all Bedouin communities would be supported with extension services. It is important to note that Bedouin women are main care takers of the animals, thus increasing support these women with

empowerment programs is essential. Bedouin communities do not have titles for land, and with limited access to grazing land due to Israeli restrictions, Bedouin communities cannot grow fodder. Thus, access to affordable fodder is a main priority to Bedouin communities. Thus supporting them with establishment of a joint procurement and storage of fodder is foreseen important in this plan.

Existing live stock markets are suboptimal in terms of their impacts on the environment and public health. There are about 14 live stock markets in the country; one is currently being replaced in the south of the WB. It is critical to conduct a prioritization for upgrade or replacement of these live stock markets to more appropriate markets from environmental and public health perspective. It is foreseen that at least 3 markets will be completely replaced with new markets that are designed and operated based on environmental best practices that would lead not only to animal protection but as well environmental protection and improved public health conditions. Furthermore, three live stock markets will be upgraded to improve their environmental and public health conditions.

Increasing the mix between agricultural plant and animal production would lead to closing the cycle; where waste from one type of production becomes a resource for the other. Hence it is foreseen that live stock agricultural holdings would be supported to introduce plant production, through supporting the poorest of them with agricultural inputs and provision of extension services to shift from live stock agricultural holding into mixed one.

Pasture management is critical aspect of live stock production, without proper management of pastures; they are threatened with soil degradation, erosion, overgrazing, and eventually desertification. Thus, the plan has identified interventions to rehabilitate pastures, and to introduce proper management and monitoring of pasture quality and productivity. It is foreseen that 8,000 Dunums of pasture would be rehabilitated during the time frame of the plan, resulting in increase in productivity by 60%; and introduction of management and monitoring for 10,000 Dunums. Furthermore, introduction of shared responsibility for monitoring and management of these pastures is foreseen as part of the plan.

2.6.2. At the food manufacturing level

The interventionsare focused on the creating environmental models of food manufacturing factories. The following interventions were identified:

The first step is to prepare guidelines for selection of manufacturing industries to implement best practices; these guidelines to be agreed with the various stakeholders. Based on the agreed upon guidelines, identify specific factories from the following food production sectors: 1) meat; 2) dairy products; and 3) bakeries) to be the models in food manufacturing.

Based on this list 10 food manufacturing industries to undergo auditing; the audit will cover environmental audit, energy audit, water audit, water audit, and waste audit. It is important to note; that the waste audit should cover two stages the production stage and the end of life stage.

Based on this audit identify measures to reduce their environmental impact and optimize their resource use.

A main environmental problem in dairy production is their wastewater; although legal requirements for establishments pre-treatment are established, this has not been practiced due to high investment costs. Thus, introducing preliminary wastewater treatment in at least five food manufacturing industries is envisaged. Models that integrate a treatment plant for more than factory is to be addressed. Furthermore, treatment through anaerobic digestion to produce energy might be also studied. It is recommended that five factories are introduced with various wastewater models to allow identification of most affordable and effective models for dairy factories in Palestine.

In parallel to the implementation of models of sustainability in food manufacturing, it is important to ensure that a proper data based is established, where information on SCP in food production is available. It is foreseen that PFI would develop this data base and support manufacturing industries in populating it. On annual bases it will report on environmental aspect of food manufacturing and it will publish at least five best cases. The data base will include information on water, waste, energy, efficiency, incidents rates, and best practices within these factories.

Support to food manufacturing industries to obtain certification is important for marketingsafe food products and sustainable products. Thus it is foreseen that at least five companies should obtain ISO14001, while 20 companies should obtain Palestinian quality standard. In order to promote switching to environmentally sustainable production, access to green financing is critical, thus it is foreseen that access to green financing of post harvesting facilities and food manufacturing are critical. Interventions identified to support these establishments to identify potential financial opportunities and to secure green funds.

Social responsibility towards own employees is an important aspect in sustainability. Thus ensuring proper occupational health and safety for the workers is critical, including the protection of their rights. Thus it is foreseen important that factories should start developing internal regulations on occupational health and safety and labor rights to ensure social protection of their employees. It is foreseen that during this planning period; five factories would develop their internal labor procedures that covers rights and duties of the employees, and occupation health and safety measures.

Because addressing some of the nutritional problems can take place at the production level of food, reduction of salt in the production of food is seen important for the health of the population. Thus supporting five food manufacturing industries in reducing their salt content is considered in the interventions in the plan. In addition, the MoH identified food products that should be fortified with nutrients. Nevertheless, not all industries are abiding yet with the fortification of these products. Therefore, increasing in the monitoring of samples and supporting to the industries to achieve this shift is foreseen in the SCP NAP.

2.6.3. At the Policy and legal framework Level

Policies to achieve sustainable agricultural production

1) Introduce concepts of green value chains in agriculture: green value chains are to be developed for at least five products in agriculture. This will put the framework for implementation SCP for each product.

2) Develop organic farming and marketing: In order to promote organic farming and marketing a clear strategy has to be developed and implemented. The strategy should address various aspects, including identification of the priority products to be grown organically, creating local demand for organic products for example through public procurement of organic food and promotion of utilization of organic meals in the restaurants, identification of crops that could be exported, ensuring that certification systems are in place for organic farming, and means to support farmers to switch towards organic farming.

3) Enhance access of farmers and cooperatives for "green financing": In order to support farmers to access green financing, it was identified that at least 10% of agricultural financing should be earmarked to SCP. Furthermore, it is critical to ensure that cooperatives are aware of these resources; therefore all cooperatives will be targeted with awareness information on access to these financial resources.

4) Activation of the established funds at the Ministry of Agriculture for insurance and for lending: Two institutions have been developed by the Ministry of Agriculture for provision of agricultural lending and for the provision of Agricultural Insurance; however these are not yet active. It is critical to work on institutional development of these two funds, and support them with seed money to activate their operations.

5) Support the establishment of farmers cooperatives for establishing and switching to sustainable production patterns: It is foreseen important to support farmers to create cooperatives that are based on sustainable production patterns, therefore, supporting about 700 farmers to create cooperatives that is based on sustainable agricultural practices is an identified intervention. Furthermore, it is important to support existing cooperatives into integrating sustainable agricultural production in their cooperatives.

5) Mainstream environmental issues in development, implementation and monitoring of projects,programs and strategies in the agricultural sector.

Mainstreaming environmental considerations into all stages of agricultural programs is critical for reducing negative environmental impacts and for creating opportunities for integrating aspects that creates positive environmental impacts. Thus, projects and programs developed in the agricultural sector should be mainstreamed for environmental consideration from the planning stages. Furthermore, in order to show the results, it is important to integrate as well mainstreaming environmental consideration in the monitoring and reporting phase. MoA and its

partners will integrate as part of their screening and development of projects the screening of projects from environmental perspective. Furthermore, it is foreseen that mainstreaming environment agricultural strategies is as important and is addressed in the plan. The utilization of SEA as a tool for mainstreaming environment in agricultural strategies would be considered.

6) Enhance the utilization of certification systems: There are various sustainable certification systems that could be utilized, such as Global GAP, Arab GAP, GHP, Palestinian GAP, HAACCP ; Field to Fork, Fair Trade; SA8000, organic farming, ISO22000, and olive oil quality standard. Some of these certifications are well established, while others still require work. Ensuring that certification systems are well developed and farmers have access to them is critical. Knowledge sharing about new and existing certification systems is addressed including supporting farmers with necessary knowledge, skills, and capabilities to obtain certification is foreseen in the plan.

7) Update standards for compost production to cover variety of waste sources, such as municipal waste furthermore, it is foreseen that technical regulations on compost quality will be as well issued.

9) Develop and finalize regulations associated with composting

Composting of waste is seen as important aspect for sustainability. Thus, regulations on composting of waste (including manure and municipal waste); has to be developed. It is foreseen that the new regulation should cover the following:

- Licensing requirements, including environmental approvals.
- Sites requirements.
- Production processes requirements, including leachate management, air quality, odors management, remaining waste management, surface water management, temperature management, moisture management.
- Maximum levels of contaminants permitted in compost.
- Maximum levels of emissions during production.
- Monitoring and reporting requirements.
- Agricultural issues relevant to composting.

10) Improvements in the management of virtual water export and import to increase import and reduceexport. It is foreseen that a policy to be developed to address virtual water import and export.

Policies to achieve sustainable food consumption

Focus on sustainable food consumption at the policy level has integrated two critical levels:

1) At the primary health care: increase the capabilities of primary health care centers of the MoH to deal with nutritional health issues. It is foreseen that guidelines and protocols on nutrition will

be developed for use at the centers. Furthermore, training and furnishing the centers with capable staff to deal with nutritional issues is foreseen in all 18 centers, where currently only three public health centers can provide such services.

2) At the school level: It is foreseen to expand schools' health programs to integrate nutritional status of children. Furthermore, guidelines and protocols would be developed on the subject during this plan and establishment of nutritional programs at schools, and the endorsement of the schools feeding program.

2.6.4. Awareness and capabilities of stakeholders

Awareness and capabilities of stakeholders on aspects related to sustainable agricultural production.

1) Conduct train-the-trainers trainings, to agronomists and extension workers to increase adoption of best practices that results in maintaining quality of products and environmental protection along the value chain. It is foreseen that 50 trainers will be trained. In total it is expected to train 2,500 agronomist and extension workers on SCP. Furthermore agricultural education schools will mainstream sustainable agricultural practices in their training; which is expected to result in 300 fresh graduates to be trained on the subject.

2) Utilize the agricultural retailers as hubs for provision of awareness materials on sustainable agricultural practices to farmers. It is foreseen that agricultural retailers will be used to distribute more than 30 awareness materials to farmers on various SCP practices. Furthermore, 60 retailers will be provided with training on sustainable agricultural practices, as they are consulted by farmers. It is foreseen that at least 50% of the retailers will be reached.

3) Integrate in the extension services issues related to sustainable agricultural practices: At least fifty materials for use on various sustainable agricultural practices will be developed, combined with training of extension service providers on the various aspects of SCP in agriculture.

4) Support farmers peer to peer extension services; through utilization of cooperatives and demonstration farms. It is foreseen that pioneer farms and cooperatives will be supported to receive visits from other farmers. It is expected that at least 50 visits will be conducted to demonstration farms, and that cooperatives would be supported to coordinate and organize trainings on sustainable practices in agricultural production.

5) Conduct Trainings to farmers to support them in obtaining certification: Obtaining certification requires high knowledge and empowerment for farmers to obtain certification and later to maintain it. Hence, training to support certification will be conducted for 1,000 farmers.

6) Conduct awareness and training workshops on new regulations related to composting: as soon as the new regulation is finalized. Training on how to implement, monitor, and inspect the new regulations will be conducted. It is expected that 100 persons from various stakeholders would be trained on the new regulations.

7) Conduct training for beneficiaries for new water infrastructure installed: it is important to ensure that any new infrastructure development will be associated with training on maintenance and operation.

8) Prepare a training program to veterinary service providers and to veterinary laboratories on waste management. As part of introducing systems for proper management of veterinary waste, training for personnel would cover that at least two laboratories personnel will be trained each year, and 50 persons working in veterinary clinics will be trained annually.

9) Conduct trainings on new procedures that will be developed by MoA on various aspects of waste management, including on culling procedures and management of resulting waste, and on procedures for management of agricultural chemicals waste. It is foreseen that at least forty persons will be trained annually; covering at least five persons per governorate of which one person at least from NGOs.

10) Conduct trainings on integrated pest management; including identification of disease, and associated biocides. It is foreseen that at least forty persons will be trained annually; covering at least five persons per governorate, of which one person at least from NGOs.

Awareness and capabilities of stakeholders on sustainable food manufacturing

1) Conduct trainings to food manufacturing industries on GMP, environmental auditing, and on environmental best practices for at least 50% of food manufacturing registered at PFI.

2) Conduct awareness to food manufacturing industries to reduce salt content in food products: 10 various awareness campaigns to be conducted salt reduction in food products.

Awareness and capabilities of stakeholders to promote sustainable food consumption

1) Conduct trainings to schools health teams on nutrition protocols and guidelines, where school health teams would be trained, covering 26 Training of trainers.

2) Conduct training to primary health care service providers on nutrition protocols and guidelines, all 18 public health care centers are trained.

3) Conduct awareness to households on healthy choices of food; healthy nutrition, and how to balance own diet, at least one focused awareness campaign per year will be conducted.

4) Conduct awareness in schools to address healthy food choices that are affordable and available to the pupils.

5) Develop and implement an action plan for awareness to households on sustainable food consumption in households, with focus on linkages to food and agricultural products.

6) Conduct research on households' food consumption patterns (including the underlying causes for choices) and links to health.

2.6.5. Knowledge and innovation on Sustainable agricultural production

1) Establish a network for information and knowledge sharing on sustainable agricultural practices and link it with regional networks to support technology localization and adaptation. The network will provide a venue for information sharing among the various stakeholders and will be the mediator for sharing knowledge and identification best practices. A network will be open for all stakeholders and individuals. It is foreseen that the institutional framework for the network should be established during the upcoming period, including distribution of knowledge to stakeholders. A secretariat for the network should be established. The network is foreseen as important development and an actor to conduct conferences on sustainable agricultural production.

2) Share knowledge and information about greening value chains of agriculture and food production: this will be conducted for any agricultural product, for which green value chain analysis was conductedwith focus on delivery of this information to relevant farmers.

3) Compilation of best practices utilized in the country related to sustainable agricultural including presenting of lessons learnt: it is foreseen that an inventory on best practices in sustainable agriculture should be conducted, based on which identify at least 20 cases to be analyzed and documented in details. Based on the lessons learnt identify at least five cases for mass replication.

4) Support civil society organizations and cooperatives to report on best practices utilized on annual basis. Civil society organizations and cooperatives have various experiences on sustainable production, thus without their reporting on these practices, ensuring that the information is available for others is difficult task. Hence, it is foreseen that use of incentives for these organizations to share their best practices is critical. Thus an award would be established for sustainable agricultural practices on annual bases. Where, the participants' experiences would be available for sharing with others.

5) Development of national indicators to measure sustainability aspects in agricultural sector and integrating its measurement as part of agricultural statistics. . A first steps would be identification of indicators and how to measure them; a second step would be conducting agricultural environmental survey every five years. During the plan period, it is expected that such survey should be conducted once.

6) Establish and support already established demonstration farms practicing various forms of sustainable agriculture. There are some demonstration farms in the country that are hubs for information sharing to farmers. Supporting these farms to integrate more elements of sustainable production is important, and supporting their sustainability is another critical aspect. Thus it is foreseen that at least five demonstration farms should be supported to be able to continue being used as hubs. Furthermore, additional two new demonstration farms would be established during the plan duration.

7) Conduct participatory research related to SCP in agriculture.

Participatory research is a key for achieving new knowledge and innovation in agricultural sector. Thus it is important to mobilize sufficient financial resources to conduct research. The needs are foreseen for at least 10 Million USD, which would result in development of various policy documents and replications models. It is foreseen that the following topics should be covered during the plan implementation:

1. Irrigation: improved irrigation practices for improved crop productions and reduced water utilization, and mitigation of negative impacts of irrigation, such localized salinity.
2. Water and nutrient use efficiency in arid and semi arid condition.
3. Nutrient management and water use efficiency for sustainable production.
4. Biological Pest control.
5. Soil quality and pollution in agricultural soil.
6. Inventory of current practices on chemical use in agricultural.
7. Economic valuation of environmental and social aspects of agriculture.
8. Challenges and obstacles for small farmers and cooperatives to obtain certification systems.
9. Evaluation study grey water units that has been developed in the past.
10. Market studies to identify requirement for production of agricultural crops that is based on demand.
11. Impact of the new Israeli agricultural policy on sustainable agricultural practices in Palestine, and identify necessary coping interventions.
12. Studies to identify crop production needs and requirements, and future developments to enhance availability of locally produced food increase the coverage of the Palestinian agricultural crops in the local market.

8) Support master students to conduct thesis on aspects of sustainable agricultural practices: It is foreseen that during the plan period, a program for providing money for 50 master students to conduct their thesis on sustainable agriculture practices.

2.7. Estimated budget

The total estimated budget of the mainstreaming SCP in agricultural and food production and consumption is about 265.7 million USD distributed as follows: 257million USD to the mainstreaming SCP in agricultural sector; 2.86 million USD to mainstream SCP in food manufacturing, and 5.9 million USD to mainstream SCP in food consumption. The distribution of mainstreaming SCP in the agricultural sector is as follows: at the farm level and post harvesting with an estimated budget of 190 million USD, extension services with 4.8 million USD, 20.6 million for research and innovation, 35 million for agricultural insurance and lending, and 6.55 million to develop policies for sustainable agricultural production.

2.8. Matrix for implementation SCP in Agricultural sector and food production and consumption

Operational objective 1 - Outcome 1: Enhancement of the use of additional and alternative water resources for agricultural purposes including sustainably community level irrigation schemes and infrastructure:

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Invest in water harvesting technologies with special considerations for agricultural holdings depending on water tankers; Note: this could include a variety of water harvesting technologies from simple cisterns, water storage tanks, ponds, small dams, and soil profiling by conducting terraces or Gabions in the sloping area aims to increase soil moisture and increase crop productivity, also its kind of land rehabilitation and stop soil erosion	MoA	NGOs, farmers cooperatives, Palestinian Water Authority (PWA), LGUs, farmers , EQA	1) Storage capacity of harvesting systems constructed 800,000 CM; of which 200,000 CM for small systems, and 600,000 CM with larger systems, such as ponds and small damns. 2) 4000 Dunums of agricultural land utilizes harvested water for supplementary irrigation and or for live stock. 3) 1000 farmers benefit from new infrastructure developed.	10,000,000
2) Increase the use of treated wastewater in agriculture Notes: a) Might require some land rehabilitation nearby the wastewater treatment plant; network construction for delivery of water, seedlings, and irrigation systems). b) Two pilots exist: Nablus and Jenin.	MoA	Ministry of Local Government (MoLG), PWA, NGOs, Local authorities , farmers cooperatives, EQA, PSI, MoH, coastal water utilities; laboratories to test treated water	1) At least one effective wastewater treatment outlet is utilized in WB and one GS. 2) Total quantity of used treated wastewater used is 11 million. 3) Total land irrigated with treated wastewater is estimated at 8000 Dunums.	35,000,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
3) Rehabilitate agricultural water sources: Note: a) water sources includes wells, canals and springs: mapping of community agricultural water systems, b) Identify locations with priorities (at risk of pollution, or with high water losses). c) Implement rehabilitation in priority locations.	MoA	PWA, EQA, NGOs, cooperatives	1) Major agricultural water sources are mapped and assessed. 2) Priority list with required actions is developed 3) Losses in agricultural water systems is reduced by 10% 4) Rehabilitation of 30 wells 5) Development and rehabilitation of networks 100 km 6) Rehabilitation of 10 springs 7) Rehabilitation of 6km of canals	6,000,000

Operational Objective 1 - Outcome 2: increase resource efficiency in live stock production

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Improve animal health, Notes: including disease prevention and management and support farmers to provide Proper nutrition for achieving high reproductive efficiency in animals, shed improvements,	MoA	NGOs, veterinary service providers, farmers cooperatives, MoH, PSI	1) Production of milk is increased by 5%. (divided by types of animals) 2) Reach all 54 Bedouin communities with extension services. 3) Increase targeting of women in Bedouin communities by 10% with empowerment 4) Bedouin communities access to affordable fodder is increased by 10% (through establishing of joint procurement and storage of fodder) 5) Increase in the percentage of holdings receiving extension services by 10% 6) Reduce new born mortality to 5% in new born cows; and by 5% in other species. 7) Ensuring 80% vaccination 8) Number of agricultural holdings targeted in shed improvements –750 per year.	45,000,000
2) Improving pasture productivity, quality, and sustainability Examples of means for improvements: a) work on composition of forage, b) better pasture management; such as introduction of legumes in pastures; improve grazing practices to allow rehabilitation of grazing land; c) Enhance the use of trees and shrubs as part of pasture management. d) utilization of high productivity crops. d) utilization of original shrubs. e) reduction in soil erosion ...etc.	MoA	EQA, Bedouin communities, NGOs, live stock holdings, Cooperatives,	1) Total grazing land area rehabilitated: 8000 Dunum 2) Total grazing land for which management systems has been introduced and monitored is 10,000 Dunums. 3) Increase productivity of range land rehabilitated by 60%.	7,000,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
3) Support the increase in mixing of agricultural holdings between live stock and crop production. Note: this might include provision of support in agricultural inputs to achieve the mixing; combined with capacity building	MoA	NGOs, farmers cooperatives,	Increase by 5% in the mixed among those that have live stock.	3,000,000
4) Improve the environmental and public health conditions of live stock markets	MoA	NGOs, LGUS, EQA, MoH, private sector	1) Conduct a prioritization of action for improvements in the existing live stock markets. 2) Develop three new live stock markets to replace the worst existing ones with properly managed markets that integrate environmental management, ensure public health safety, and animal health protection. 3) Rehabilitate three existing live stock market to improve their environmental management and reduce negative public health impacts.	2,000,000

Operational Objective 1-Outcome 3: increase resource efficiency in plant production systems

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Increase the rate of precision irrigation systems: a) introduce computerized irrigation systems. b) increase the rate of drip irrigation systems and other efficient irrigation technologies.	MoA	EQA, NGOs, cooperatives, agricultural holdings,	1) Increase by 5% annually in irrigated land that utilizes drip irrigation (or other efficient technologies). 2) 500 Dunum of land area that utilizes computerized irrigation systems. 3) Increase in agricultural holdings that utilize efficient irrigation systems by 5% annually. 4) Increase in the total number of trees irrigated with precision irrigation systems by 5% annually. 5) Water efficiency indicator: water use / crop production improve by 5%.	13,000,000
2) Introduce precision fertilization systems A: using organic fertilizers B: using precise chemical fertilizers according to soil and plant needs	MoA	EQA, NGOS, Cooperatives, agricultural holdings, MoE, consumers protection organizations, agricultural supplies retailers	1) At least three types of plants has started using precision fertilization. 2) At least 500 Dunums utilizes precision fertilization (covering both organic and chemical fertilizers). 3) Total Kg of fertilizers added for Dunum	10,000,000
3) Introduce agricultural practices that results in preventing losses of soil moisture content and organic matter.	MoA	EQA, NGOS, Cooperatives, agricultural holdings, extension service providers, research centers	1) Best practices that can result in protecting soil quality and moisture are identified for 10 crops in 5 climatic areas. 2) At least 80% of Extension service providers are aware of best practices and introduce them as part of their extension service. 3) 15% of agricultural holding implementing best practices in their crop management. 4) Total land managed according to these guidelines developed. 5) Total area of land rehabilitation to save moisture and organic matter; through terraces for example	2,000,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
4) Support shifting to the utilization of drought resilient crops and saline resilient crops	MoA	NGOs, agricultural cooperatives and agricultural holdings,	1) Total land area planted with drought resilient seeds. 2) Adding at least 5 new tolerant specimens and seeds annually. 3) Increase by 5% fodder production that is based on drought resilient seeds 4) Increase by 5% utilization of seeds and specimens that are saline and draught resistant in GS coastline. 5) increase by 5% in the irrigated field crops that are based on drought tolerant varieties and species	3,000,000
5) Introduce energy and water efficiency in the post harvesting systems a) conduct energy and water audits. b) prioritize implementation actions. c) develop operational procedures to reduce energy and water consumption. d) implement required modifications	MoA	PENRA, EQA, NGOs, agricultural cooperatives, post harvesting storage facilities, agricultural produce transporters	1) No. of post harvesting systems audited (energy and water). 2) No. of systems for which improvements implemented to reduce energy and water losses. 3) No. of post harvesting systems for which Operational procedures developed. 4) Total energy savings achieved. 5) Total water savings achieved	4,000,000
6) Control and management of pests outbreak in agriculture	MoA	EQA, NGOs, university	1) No. of traps introduced to cover main 10 crops in the country. 2) No. of biocides introduced. 3) No of chemical pesticides in use. 4) Risk assessment and analysis on impacts on crops of 5 to 10 pests, weeds, and insects. 5) 15 Trainers are trained on training of trainers on pests control management. 6) Extension Services conducted by 15 TOT. 7) No. of laboratory tests conducted on residual pesticides and on types of pathogens	2,000,000

Operational Objective 1-Outcome 4: promoting accesses to renewable energy in agricultural holdings, and promote shifting to renewable resources

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1)Increase access of agricultural holdings to energy through utilization of renewable energy	PENRA	MoA, NGOs, agricultural holdings, EQA, Academia and research, MoF, electricity companies	1) At least 200 agricultural holdings that do not have access to energy, were provided with access through renewable sources. 2) Total renewable energy generated in these agricultural holdings. 3) 10 Boosters for pools and15 wells operated on renewable energy.	3,000,000
2) Promote the switching to renewable energy in agricultural production and post harvesting.	PENRA	MoA, NGOs, Agricultural holdings, renewable energy private sector, EQA, agricultural cooperatives and agricultural CBOs, MoF, electricity companies	1) 10% of post harvesting facilities utilize renewable energy. 2) Total renewable energy generated. 3) % of energy utilized that is renewable.	2,000,000
3) Introduce energy generation from anaerobic digestion of waste.	EQA	PENRA, local authorities, NGOs, agricultural holdings, MoA, private sector – renewable energy companies	1) Implement 2 pilot projects for anaerobic digestion of agricultural waste with minimum capacity of 1 ton/day (of which one in GS and one in WB). 2) Total quantity of agricultural waste treated through anaerobic digestion. Total methane gas produced through anaerobic digestion. 3) Total methane gas utilized for energy generation. 4) Total energy produced. 5) At least one large scale project is planned.	2,000,000

Operational Objective 1-Outcome 5: reduction of post harvesting waste

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Develop post harvesting systems that result in reduction of food waste Examples 1) Development of cold storage facility 2) Development of cold transportation systems 3) Proper packaging and handling to ensure reduction of waste.	MoA	MNE, NGOs, cooperatives, Palestinian shippers council, local authorities, EQA, Ministry of transportation, MoLG, MNE, Ministry of transportation, MoH	1) Identification of priority areas and crops to introduce improved post harvesting systems. 2) 20 new technologies for various products studied and transferred. 3) 5 cooperatives are supported to establish post harvesting system. 4) No. of agricultural holdings benefiting developed post harvesting systems. 5) Quantity of products managed through newly developed post harvesting systems. 6) Reduction in the losses of food waste. 7) At least 50% of food waste has been reused. 8) Increase in the marketing and distribution channels of agricultural products.	5,000,000
2) Improve the Links between producers and markets	MoA	MNE, NGOs, retails, export companies, food industries, food retail companies, PSI,	1) 5 crops targeted for which links has been established. 2) Increase in the No. of cooperatives that are specialized in agricultural marketing and distribution by 10%. 3) Increase by 10% in the No. of cooperatives that integrates marketing of agricultural products in their scope of work. 4) Total number of cooperatives who had agreement for sale of their products prior to harvesting. 5) % of food produced by agricultural cooperatives that is sold in a timely manner. 6) % of food produced by small agricultural holders for intension to sell; that is sold on timely manner (i.e. did not end being wasted).	2,000,000

Operational Objective 1-Outcome 6: improved management of agricultural waste

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget USD
1) Develop Veterinary waste management a) Introduce proper waste management in agricultural laboratories: i) Introduce a system for collection of chemical wastes from veterinary laboratories ii) Introduce autoclave from disinfection of veterinary waste resulting from laboratories. b) Introduce proper management of medical waste resulting from clinics, stationary and mobile. c) Introduce procedures and protocols for management of materials and culled animals as a result of diseases d) Introduce procedures for management of dead animals	MoA / EQA	MoH, veterinary service providers, MoLG, LGUs, Civil defense	1) 100% of laboratories that has procedures for management of agricultural veterinary waste. 2) 20% of laboratories that has disinfection equipment. (remaining – collection and disinfection in other facilities) 3) by end of 2018 National guidelines for management of chemical waste from agricultural laborites is established. 4) 80% of laboratories that implement the procedures on chemical waste. 5) Total quantity of chemical waste collected from laboratories. Reported upon (80% at least) 6) at least 4 vehicles or 2 service providers licensed to transport chemicals. 7) 80% of veterinary clinics that has introduced proper management of veterinary waste. 8) Procedures for management of waste as a result of diseases is updated by end of 2018. 9) procedures for management of dead animals is updated by end 2018.	3,000,000
2) Develop the system for proper handling and management of agricultural hazardous wastes a) Develop the system for collection of hazardous waste resulting from agricultural practices. b) Introduce collection of chemicals containers to be treated as part of the hazardous waste streams. c) Develop the system for transport of agricultural hazardous waste to temporarily facilities	MoA/ EQA	Palestinian shippers association, agricultural chemicals retailers, NGOS, MoLG, MoH, Civil defense	1) Updated the guideline for management of chemicals waste from agricultural sources by 2018. 2) At least 50% of total quantity of agricultural hazardous waste that is collected. 3) By end of 2019 - Extension service providers are aware of the guidelines on chemical waste management and support farmers in implementing it. 4) At least 50% of agricultural hazardous waste that is transported through licensed transporters. 5) All collected agricultural hazardous wastes treated in a designated facility.	1,000,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget USD
d) Ensure that all hazardous waste is transported from temporarily facilities into licensed disposal/treatment facilities according to Basel agreement. .				
3) Develop pilot projects for utilization of selected wastes in animal fodder production	MoA	EQA, NGOs, cooperatives,	1) Three pilot projects developed from different waste fraction. 2) At least one large scale project is planned. 3) Total quantity of waste valorized. 4) Total quantity of fodder produced	1,000,000
4) Improve utilization of treated manure in fertilization	MoA	EQA, NGOs, cooperatives, extension services PSI,	1) At least 5 composting projects developed. 2) Total quantity of manure treated. 3) At least 20% of manure is treated and is being utilized as organic fertilizers. 4) Total quantity of compost produced according to standards. 5) 100% of compost produced is sold. 6) Percentage of agricultural holdings that utilize organic fertilization is increased by 5% annually.	4,000,000
5) Support in developing and implementing manure management and treatment for cooperatives and big agricultural holdings	MoA	EQA, Agricultural cooperatives, live stock holdings, NGOs	1) Quantity of manure that is properly managed. 2) 25 live stock cooperatives are supported in management and treatment of manure. 3) 25 big agricultural holdings has introduced management and treatment for their manure.	25,000,000

Operational Objective 2 - Outcome 7: food manufacturing industries are implementing best practices

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Identify priority food manufacturing for introduction of best practices.	PFI	EQA, MNE, PSI,	1) Guidelines for selection prepared and agreed upon by stakeholders. 2) A list of priority manufacturing factories identified from meat, dairy and bakeries.	60,000
2) Conduct environmental auditing to food manufacturing	EQA	MNE, PFI,	Conduct auditing for 10 food manufacturing companies.	100,000
3) Support food manufacturing in optimizing their resource use: input of raw materials, water, and electricity.	EQA	MNE, PFI, NGOs, PWA, PENRA	Support the 10 audited manufacturing companies in optimization of their resources.	500,000
4) Support food manufacturing in reducing waste generated from production, after use	EQA	MNE, PFI, PWA, NGOs	Support the 10 audited companies in reduction	100,000
5) Establish a data base for food manufacturing that integrates environmental issues Note: including water, waste and energy, efficiency indicators, and best environmental practices utilized.	PFI	MNE, EQA, food manufacturing industries, MoH	1) Data base established. Data for at least 20 food manufacturing industries that populates the database. 2) Reporting on environmental aspects of 20 food manufacturing is published annually. 3) At Least 5 best cases published.	300,000
6) Introduce GMP to food manufacturing and other certification systems	MNE, PSI	PFI, EQA	1) 10 companies obtained GMP certification 2) 20 companies have obtained Palestinian quality standard 3) 5 companies obtained ISO 14001.	200,000
7) Introduce preliminary wastewater treatment for food manufacturing industries	MNE	PFI, EQA, MoH, MoLG, PWA, local authorities	Five companies that have wastewater quality above legal limit, introduce preliminary treatment plant.	750,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
8) Ensure proper occupational health and safety within food production facilities.	MoL / MoH	MNE, PFI	1) Reduction in the No. of occupational incidents by 10% 2) 5 companies have internal regulations on occupational health and safety that is endorsed by MoH and MoL	50,000
9) Expand monitoring on food fortification for additional 8 food fortified products.	MoH	MNE, PFI, PSI, consumer protection agencies, customs police	1) Increase in compliance by 20% of samples of fortified food. 2) At least 30% of food manufacturing industries are in compliance with the technical regulation on fortification.	100,000
10) Reduce salt content in food products.	MoH	MNE, PFI, PSI	5 factories that have introduced reduction of salt content in their products.	100,000

Operational Objective 3 - Outcome 8 Policies and legal frameworks for SCP in agricultural and food are developed

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Introduce concepts of green value chains in agriculture	MoA	NGOs, EQA,	Strategies and policies for at least 5 products of agriculture integrate green value chain principles.	100,000
2) Develop Organic farming and marketing:	MoA	NGOs, cooperatives, Hotels association, Ministry of tourism, big retail stores, food manufacturing companies, Paltrade, cooperatives, food export companies, fair trade companies, Ministry of finance, EQA, PFI, MNE	1) A strategy for organic farming and marketing is developed by end of 2017. 2) 10% of farms implement organic farming as part of their production process. 3) At least 25 crops are prioritized for organic farming. 4) 10 hotels and restaurants serving organic meals. 5) 5% of public procurement of food is organic. 6) Increase by 5 %in organic agricultural products export.	1,000,000
3) Enhance access of farmers and cooperatives for "green financing".	MoA	Bank of Palestine, NGOs and agricultural lending facilities, MoF, EQA	1) 100% of cooperatives know about financial resources for introducing sustainable agricultural production. 2) 20% of cooperatives that received financial support (loan or donation) based on application – to switch to more sustainable agricultural practices. 3) At least 10% of finances in agricultural sector is directed for introduction of SCP in agricultural production.	500,000
4) Activation of the established funds for insurance and for lending.	MoA	Ministerial cabinet, Ministry of Finance,	1) The insurance fund issuing insurance for farmers against climatic and environmental shocks. 2) The lending fund started provision of funds or guaranteeing fund for farmers.	35,000,000
5) Support the establishment of	MoA	MoL, NGOs, CBOs,	1) 25 New cooperatives established with at least	1,000,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
farmers cooperatives and switching to sustainable production patterns		EQA	700 members. 2) At least 10% of the new cooperatives established address sustainable agricultural practices.	
6) Mainstream environmental issues in development, implementation and monitoring of projects, programs and strategies in the agricultural sector.	MoA	EQA, implementing agencies, NGOs,	1) At least 50% of projects are mainstreamed to environment in the planning and implementation phase. 2) At least 25% of projects that mainstream environmental issues in their monitoring and evaluation and reporting.	500,000
7) Enhance the utilization of certification systems: such as: Global GAP; Arab GAP; GHP; HAACCP ; Field to Fork; Fair Trade; SA8000, organic farming, ISO22000, olive oil quality standard.	PSI	MoA, MoL, , cooperatives, and farmers, EQA, NGOs, Paltrade, MNE, the PIEFZA, MoH	1) At least 4 new types of certification systems available. 2) 10% of farmers and cooperatives have the knowledge on certification systems. 3) 5% of agricultural holdings that has certification systems. 4) No. of certifying companies available. 5) At least 30 cooperatives promoting certification systems to at least 700 members.	3,000,000
8) Update standards for compost production to cover variety of waste sources, such as municipal waste; and issues technical regulations on the subject.	PSI	EQA, MoA, MNE, MoLG, NGOS, MoH, universities, MoE	1) Standards for compost quality is updated – with qualification grading. 2) Technical regulations on compost is issued.	150,000
9) Develop and finalize the regulations associated with composting	EQA MoA	MoLG, MNE, MoA, PWA, PSI, NGOs	Regulations covering the following is issued: 1) licensing requirements, including environmental approvals. 2) Sites requirements; 3) production processes requirements. 4) maximum pollutants permitted in compost. 5) monitoring and reporting requirements. 6) agricultural issues relevant to composting.	100,000
10) Improve in the management of virtual water export and	EQA/MoA	PWA, MNE, Paltrade, NGOs,	1) A policy is developed to reduce export of virtual water.	200,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
import to increase import and reduce export.		EQA, Higher Council of Water	2) A policy is developed to increase import of virtual water.	
11) Encourage Good Manufacturing Practices (GMP)	PFI	MNE, MoH, Bank of Palestine, PSI, MoA, EQA	1) List of priority industries identified by end of 2017. 2) Identify technical gaps in 10 manufacturing enterprises to obtain 3) GMP by end of 2018. 4) Support 5 food manufacturing industries to access funding for improvements. 5) 50% increase in food manufacturing industries with GMP.	200,000
12) Promote "Green Financing" for food manufacturing and post harvesting facilities.	MNE	MoA, EQA, PENRA, Bank of Palestine, PFI, chamber of commerce, MoF, cooperative	At least one million is secured for greening manufacturing and post harvesting processes.	100,000
13) Expand schools health programs to integrate nutritional status of children.	MoE/MoH	UNRWA,	1) Guidelines and protocols developed by end of 2017. 2) 100% increase in the number of schools that has nutritional programs established. 3) Feeding programs approved.	2,000,000
14) Increase primary health care capabilities to deal with nutritional health issues.	MoH	UNRWA and NGOS providing primary health care services, WHO, PRCS	1) Guidelines and protocols on nutrition developed for primary health care center by end of 2017. 2) 18 primary health care that are capable to deal with nutritional health issues	1,000,000

Operational Objective 4- Outcome 9: awareness and capabilities of stakeholders is increased on aspects related to sustainable agricultural production.

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Conduct train-the-trainers trainings: to agronomists and extension workers to increase adoption of best practices that results in maintaining quality of products and environmental protection along the value chain	MoA	EQA, NGOs, universities, Agronomist association, cooperatives	1) 50 TOT trained: 2) 2500 training conducted by trainers who were trained. 3) All schools providing agricultural education has courses relevant to Sustainable agricultural practices. 4) 300 fresh graduates are trained on aspects related to SCP.	1,000,000
2) Utilize the agricultural retailers as hubs for provision of awareness materials on sustainable agricultural practices to farmers.	MoA	NGOs, CoC, Cooperatives, union of cooperatives	1) 30 awareness materials prepared for distribution through agricultural retailers. 2) At least 60 persons from retailers are trained on sustainable agricultural practices. 3) 50% of retailers reached.	300,000
3) Integrate in the extension services issues related to sustainable agricultural practices.	MoA	NGOs, MoA, agronomist association, EQA,	At least fifty materials for use on various sustainable agricultural practices	500,000
4) Support farmers peer to peer extension services; through utilization of cooperatives and demonstration farms.	MoA	NGOs, farmers cooperatives,	1) At least 50 visits conducted to demonstration farms. 2) Increase by 20% of peer to peer farmers extension services. 3) At least 15% of cooperatives organize trainings and awareness sessions on aspects of sustainable agriculture.	1,000,000
5) Conduct Trainings to farmers to support them in obtaining certification.	MoA	NGOs, PSI and certification providers agencies, EQA	1) At least 1000 farmers trained. 2) At least 200 agricultural holdings that obtained certification.	1,000,000
6) Conduct awareness and	EQA / PSI	MoA, NGOs, private	100 of persons trained per year.	50,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
training workshops on new regulations related to composting		sector interested in composting, LGUs,		
7) Conduct training for beneficiaries of water systems on maintenance	Implementing agencies of infrastructure development	MoA, NGOs, cooperatives, PWA,	1) Training manuals for maintenance prepared by 2017. 2) For each new project implemented; training should be an integral component.	700,000
8) Prepare a training program to veterinary service providers and to laboratories on medical waste management.	MoA	EQA, LGUs, MoH, NGOS,	1) Training for personal is conducted for at least two laboratories per year. 2) At least 50 staff from veterinary clinics are trained on veterinary waste management. Per year.	50,000
9) Conduct trainings on new procedures developed by MoA on various aspects of waste management: a) Culling procedures and management of resulting waste b) Procedures for management of agricultural chemicals,	MoA / EQA/ MoH	NGOs	1) At least 40 persons trained per year. 2) At least 5 persons per governorate in MoA 3) At least 1 person from each NGO active in agricultural extension.	100,000
10) Conduct training on pest control	MoA	NGOs, cooperatives,	1) At least 40 persons trained per year. 2) At least 5 persons per governorate in MoA. 1) At least 1 person from each NGO active in agricultural extension	100,000

Operational Objective 4- Outcome 10: awareness and capabilities of stakeholders is increased on aspects related to sustainable food manufacturing

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Conduct trainings to food manufacturing industries on GMP, environmental auditing, and on environmental best practices.	PFI /MNE	PSI, EQA, MoH	50% of food manufacturing registered in PFI	200,000
2) Conduct awareness to food manufacturing industries to reduce salt content in food products.	MoH	MNE, PFI, PSI	10 awareness campaigns conducted salt reduction in food products.	200,000

Operational Objective 4- Outcome 11: awareness and capabilities of stakeholders is increased on aspects related to sustainable food consumption

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Conduct trainings to schools health teams on nutrition protocols and guidelines	MoH /MoE	UNRWA, NGOs, School personal involved in education on the subject, MNE,	1) 26 persons trained on TOT for nutrition covered all directorates. 2) 100% of school health teams trained.	300,000
2) Conduct training to primary health care service providers on nutrition protocols and guidelines	MoH	UNRWA, NGOs	All primary health care centers teams are trained.	300,000
3) Conduct awareness to the general public on healthy choices of food; healthy nutrition, and how to balance own diet.	MoH	EQA media agencies, LGUs, food consumers organizations, PSI,	At least one awareness campaign per year.	300,000
4) Develop and implement an action plan for awareness to households on sustainable consumption in households, with focus on linkages to food and agricultural products.	EQA	EQA, MoH, MoA, media agencies, LGUs, food consumers organizations, PSI, MoH, NGOs	Detailed plan with indicators, target groups and agreement with NGOs, and LGUS on detailed implementation. Implementation of plan and achievement of its indicators.	700,000
5) Conduct awareness in schools to address healthy food choices, which are affordable and available to the pupils.	MoE / MoH	NGOS, LGUs, environmental clubs in schools, EQA,	50% of schools targeted.	200,000
6) Conduct Research on households food consumption patterns (including underlying causes for choices) and links to health	Universities and research centers	MoH, NGOs, Ministry of Social development, National health institute, households, PCBS	1) at least 3 different publications produced. 2) at least two policy briefs developed	1,000,000

Operational Objective 5- Outcome 12- knowledge and innovation on Sustainable agriculture production is available and accessible to stakeholders

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1) Establish a network for information and knowledge sharing on sustainable agricultural practices and link it with regional networks to support technology localization and adaptation.	MoA /EQA	Research centers, universities, NGOs, cooperatives, MoE	1) At least 10 NGOs and at least 11 CBOs implement replicate cases on SCP from the network. 2) Conduct at least once a year a conference on sustainable agricultural practices 3) The following indicators are to be measured to see how the network is progressing: a) Total no. of beneficiaries of NGOs and CBOs who benefited from the information on the network. b) Total No. of NGOS and CBOS reporting access to new technologies from the network. c) No. of cooperatives who have access to information on the network. . d) No. of demonstration practices presented on the network by CBOs/NGOS and cooperatives.	3,000,000
2) Share knowledge and information about Greening value chains of agriculture and food production	MoA	EQA, NGOs, farmers, universities, cooperatives	1) For all agricultural products that has undergone green value chain analysis information is shared. 2) 50% of farmers producing the agricultural products for which green value chain analysis was conducted received information on the topic.	500,000
3) Compilation of best practices utilized in the country related to sustainable agricultural including presenting of lessons learnt	MoA / EQA	NGOS, MoA, universities, cooperatives,	1) Inventory of cases prepared by end of 2018. 2) At least 20 cases were analyzed and documented in details. 3) At least 5 cases identified for replication	1,000,000
4) Support civil society organizations and cooperatives to report on best practices utilized on annual basis.	MoA	PNGON, NGOs, universities, EQA, cooperatives,	1) Award established for best practices and distributed on annual basis. 2) At least 10% Increase in the number of best practices annually submitted for the award is registered.	500,000
5) Development of national	PCBS	EQA, NGOs, MoA	1) Indicators are agreed upon in 2017.	600,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
indicators to measure SCP in agricultural sector and integrating its measurement as part of agricultural statistics.			2) Sources of data for measurement of indicators is agreed upon in 2017. 3) Survey conduct every 5 years. (at least one survey to be conducted between 2017-2022)	
6) Establish and support already established demonstration farms practicing various forms of sustainable agriculture.	NGOs	MoA, cooperatives, universities, EQA	1) 5 existing demonstration farms are supported; of which 2 in GS. 2) Total financial support to existing demonstration farms is in the value of 1 million USD. 3) At least two new demonstration farms for sustainable agricultural production are established of which one in GS. 4) 10,000 farmers visiting demonstration farms per year.	3,000,000
7) conduct participatory Research related to SCP in agriculture (see text for suggested topics)	MoA	EQA, NGOS, farmers, cooperatives, Universities and research centers, PCBS, PWA	1) At least 10 millions USD are spent on research and development on sustainable agriculture 2) 24 publications produced 3) At least 12 policy briefs developed as a result of the research conducted.	10,000,000
8) Support master students to conduct thesis related to sustainable agricultural practices	MoE/MoA	Universities, cooperatives, NGOs, EQA, PCBS, association of agronomists engineers	1) 50 master thesis per year targeting sustainable agricultural practice and technologies	2,000,000

3. Chapter Three: Mainstreaming SCP in Tourism - Promotion of Eco-Tourism

3.1. Background

The tourism sector holds a high potential for growth and job creation as identified in the Tourism Sector Export Strategy 2014-2018. In 2013, 14% of the GDP originate from the tourism sector (includes both direct and indirect activities related to tourism); however, direct contribution stands only at 4% of GPD and 2% of employment[59]. There are 7,064[60] tourism enterprises in the sector employ directly and indirectly about 26,484 persons (2014) of which 8,157 are unpaid[61] (PCBS 2014).

As part of the export strategy for tourism; two value chains were developed; one analyzing the existing value chains; while the other showing potentials for future value chain. The current value chain presented in the strategy shows that eco-tourism does not bring additional value in the tourism sector. However, the strategy envisages the development of the value chain in a manner that results in diversification of products and services, including various alternative tourism options. The tourism export strategy for tourism has identified eco tourism as one of several diversification options of tourism, these include: Islamic heritage, cultural events, solidarity tourism, and eco tourism. Unfortunately; the presentation of eco-tourism in the strategy was foreseen only as seasonally activity from November to May.

The tourism export strategy however did not address sustainable consumption and production practices in the value chain tourism except for the eco-tourism. It can be observed that enhanced efficiency of resources utilized is not part of the future value chain in the strategy.The data about the tourism sector does not provide information on energy and water consumption per visitor per day; nor provides information on waste generation. It is foreseen that within the coming years, introduction of efficiency standards as part of development of eco-tourism combined with awareness to service providers could be the seed for more intensive integration of SCP in the tourism sector.

The Tourism Export strategy has various objectives; of which strategic objective 1 is most relevant for further focusing on eco-tourism. The Strategic objective of the export strategy states: *"Develop and widen tourism offers to expand business in the off season and extract additional value from seasonal tourism."* Furthermore, the objective was supported with two operational

[59] The State of Palestine National Export Strategy: Tourism Sector Export Strategy 2014-2018.
[60] PCBS. Number of Enterprises, Employed Persons and Main Economic Indicators for the Tourism Enterprises in Palestine by Tourism Activity, 2014. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/TourAct-2014-E-01.htm Last accessed 8 June 2016.
[61] PCBS. Number of Employed Persons and Compensation and Payments in kind and Other in the Tourism Enterprises in Palestine by Tourism Activity, 2014. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/TourAct-2014-E-02.htm Last accessed 8 June 2016

objectives: *"Develop religious, historical, cultural and natural sites"* and *"Mainstream tourism into local planning"*

On the international level; 2017 was identified as the International Year of Sustainable Tourism for Development[62], furthermore, tourism was identified as a key priority area for the Mediterranean regional plan for SCP and eco tourism was identified important in the Arab road map for implementing 10YFP on SCP. Parallel to this, there are several local non-governmental organizations and community based groups, and some youth initiatives that are working on eco tourism. A youth group of Bedouin have developed an initiative in ecotourism to protect their community and enhance its resilience of their community. [63] With the export strategy identifying eco-tourism as a potential for diversification the value of chain of tourism; and creation of new values in the chain; eco-tourism is gaining more interest.

Therefore, the SCP National Plan has identified Eco-tourism as entry point to mainstream SCP in the tourism sector.The SCP action plan on tourism has consulted with a variety of stakeholders including representatives of national and local government, NGOs and CBOs, youth initiatives, and private sector organizations.

[62] http://media.unwto.org/press-release/2015-12-07/united-nations-declares-2017-international-year-sustainable-tourism-develop Last Accessed June 8 2016.
[63] http://www.unrwa.org/newsroom/features/desert-and-its-people-building-bedouin-resilience-through-eco-tourism Last accessed June 10 2016

3.2. Strategic and operational objectives

Strategic Objective: Develop and widen Eco-tourism to expand business in the off season and extract additional value from seasonal tourism to ensure protection and rehabilitation of natural resources, respecting spatial, ecological, and socio-cultural carrying capacities of the destination and reducing environmental impacts of tourism		
Operational objective 1 Promote the diversification of the tourism to integrate alternative forms of tourism (e.g. ecotourism, cultural tourism, rural tourism, off-season tourism) to reduce the impacts of seasonality and to reduce environmental pressures on natural systems and protect them.	**Operational objective 2** Promote regulatory, legislative and financial measures to mainstream SCP in the tourism sector, to enhance off season tourism, to create green and decent jobs, and to promoting local community engagement and empowerment	**Operational Objective 3:** Raise awareness, capacities and technical skills to support sustainable destinations, and promote the development of appropriate marketing and communication tools to enhance sustainable Tourism

3.3. Interventions and outputs identified

3.3.1. Identification of list of eco-tourism sites

In order to identify sites and trials, it is important first of all to develop the guidelines for selecting eco tourism sites (i.e. activity no. 5 under outcome 3). The guideline is required in order to ensure that the sites selected could be developed in a manner that does not harm the eco-systems, and can contribute to their protection. The guideline should identify the requirements for final selection of sites, including environmental assessments requirements and qualification and quantification of impacts on the eco-systems at hand, and whether with proper mitigation measures sites could be designated for eco-tourism.

The selection of sites has to be based on multi stakeholder consultation process; a call for relevant stakeholders to participate in nominating sites should take place; this should be followed by conducting visits and assessments to the nominated sites according to the guidelines developed; upon which the final list of sites is identified.

As the sites becomes agreed upon by the various stakeholders, it is important to ensure that these sites are integrated in the national spatial plan to ensure that the sites are designated only for eco-tourism in the future.

Mapping of sites is a critical step to facilitate knowledge and access to these sites. Hence, mapping of sites within touristic maps are to be produced, combined with specific mapping for each trail.

3.3.2. Development of eco-tourism sites

Fifteen eco-tourism sites will be developed as part of the plan. This intervention can be looked as a group of 15 small projects; each project consists of site detailed identification, site development, introduction of management tools and their utilization, site marketing.

For each site identified, further consultations with community organizations such as NGOs, CBOs, local community, and the local governmental unit in the vicinity of the site will be conducted. Based on these consultations potential partners for management of the site would be identified.

A memorandum of understandings with identified partners to manage the sites should be signed. Such memorandum of understandings should integrate environmental and social principles in the management of the site. It is important that such memorandums of understandings are endorsed by EQA and MoTA and other relevant stakeholders if necessary.

For each site identified, details of the site development requirements are identified, including their costs. This would include the addition of marks for trails, some minor physical works to facilitate access to sites, provision of wash facilities at locations, visitors centers, …etc. For each site it is important to identify the development required by creating a project profile for each site that includes various information on the site including; what should be done, the associated costs, the advantages and limitations of the site, how the local community would benefit from the development of the site and its management. The site development should consider the following aspects as an integral part; thus should be integrated in the profile and associated costs of sites development: utilization of renewable energy, water conservation and harvesting, waste management, water and energy efficiency in support services, dependency on local community; utilization of food and other local product that are fair trade and/ or sustainably grown; utilization of locally produced products. The profile should integrate the environmental importance of the site, and the main ecological assets of the sites.

For each site identified, MoTA with the partner of the site are to seek access to financial resources to develop the site. MoTA also should work on fundraising for priority sites identified.

3.3. Sites development and management

It is expected that during the 2017-2022 that 15 sites would be developed. In order to ensure that these sites are developed properly, environmental management plans for the phase of development is critical. This is critical as the sites might be environmental sensitive and requires precautions in their development.

The partner identified for management of the site should be empowered by MoTA and EQA to develop proper management procedures for the site: these might include issues such as codes of conduct for operation of the site, visitors management measures, utilizing the site for educational activities, proper maintenance of site, documentation of site operations, monitoring of ecological assets, and records keeping. It is important that specific guidelines for management of each site

are developed, and that the operators of the site are trained on the implementation of these guidelines.

Furthermore it is important to support NGOs, CBOs, or local authorities that will be managing the sites with the development of entry fees for these sites that takes into consideration environmental aspects for sites maintenance and management. Thus it is important to identify the appropriate fees to ensure that the operator of the site can sustain the management of the site according to the guidelines in place and that it has the sufficient financial resources to ensure its protection.

3.4. Marketing and promotion of newly developed sites

For each site, it is important to develop a guideline on the site that could be integrated in the guide to teachers. MoE in cooperation with MoTA and EQA and other relevant stakeholders would develop a guide to teachers on eco-tourism. This guide would show the socio-economic and environmental impacts of ecotourism; and could utilize a real case studies from the sites developed. Such a guide should integrate the historical, environmental and ecological value of the site, including social and cultural setting.

Each site to be promoted through various tools; this may involve design and dissemination of information / promotional materials; an interactive web-based wiki-site open to providers, users (tourists) and hybrids ; the design of alternative itineraries ; combination with community-based tourism offerings.

3.5. Creating an enabling environment for switching towards sustainable tourism

In order to promote sustainable tourism, including eco tourisms; several important interventions were identified at the policy level as well as at the consumers level. At the local level; it was seen important to integrate concepts of eco-tourism at the planning level of LGUS. Sustainable local economic development could be promoted through evaluating the options for sustainable tourism and eco tourism in the local planning. Hence, it is important that the planning processes utilized at the local level consider these within their developmental plans. Thus it was foreseen important to modify the guidelines for Strategic Development and Investment Plans utilized at the LGUs to consider sustainable tourism within the planning process. Furthermore, physical plan should consider the community needs for ensuring potential eco tourism sites are designated for ecotourism and not being zoned for other developmental uses.

On the national level, a draft tourism law is being developed; hence it is important to mainstream principles of SCP and eco charges in this upcoming law.

On the consumer level it is important to conduct activities that contribute to creating an increased demand on sustainable tourism in general and eco tourism in particular; two types of consumers are foreseen: domestic tourists and international tourists. Thus awareness activities should target

both types with focus on off the beaten track sites. These include not only the newly developed sites to be developed as part of this plan; but other sites as well. Schools and universities contribute strongly to domestic tourism, and is the best sphere for integrating awareness and knowledge on sustainable life styles. Thus introducing eco-tourism in schools and universities is an important mean of creating demand for sustainable tourism. In order to facilitate this the following activities were identified: 1) conduct a focused campaign targeting educational facilities (schools, colleges and universities) in 2017 on eco tourism – in lieu with the year of sustainable tourism and 2) development of teachers guide for schools on eco tourism and training of school teachers on utilizing the guide.

In order to increase attraction of international tourism to eco-touristic sites, it is important to work with service providers in the tourism sector to integrate marketing and communication activities on Palestinian sustainable destinations. Furthermore, supporting eco-tourism sites to participate in various fairs, exhibits, and events would result in increasing knowledge of these sites. The promotion of eco-tourism sites could also integrate reaching agreements with various tour operators and intermediates to promote the visits to eco-tourism sites.

In parallel to this, it is important to start awareness to tourism providers on the importance of obtaining eco-labeling for sites and services provided. This would result in switching towards environmental certification of services.

3.4. Estimated budget

Estimation of total budget is 2.285 million USD for the five years of the plan; distributed among the three objectives as follows: 62% for operational objective 1; 24% for operational objective 2; and 14% for operational objective 3.

3.5. Matrix for implementation SCP in tourism sector

Operational Objective1- Outcome 1: Ecotourism sites are identified

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1. Identify potential sites and trails for development and prioritize them based on multi-stakeholder consultation process	MoTA / EQA	MoA, CBOs, NGOs, Local authorities, Ministry of WAQF	1) Long list of potential sites prepared. 2) A list of identified sites based on the guidelines developed (under outcome 3-activity 5). 3) Prepare prioritization of sites and trails for development.	70,000
2. Identify potential partners for development of each of the new sites and trails identified	MoTA	CBOs, NGOs, Local authority, Private sector organizations	1) Five sites and ten trails for which partnership agreements has been signed.	10,000
3. Develop a site project profiles to receive priority public / donor investment and development, in addition to fostering private development of primary sites. Note: profiles to include information related to estimated costs, type of rehabilitation required, limitations, advantages, potential impacts on the local community and environment).	MoTA / EQA	Identified specific partners in 2; for each site.	1) Fiteen Site project profiles produced. 2) All 15 sites received funding commitments. 3) Estimate cost for 15 sites development identified.	60,000
4. Conduct mapping of sites and trails	MoTA	Institutions active in mapping; example ARIJ, NGOs, private sector, MoLG, EQA	1) Ten new maps prepared. 2) Fifteen new sites mapped	100,000
5. identify funding sources for development of sites and trail	MoTA	Partners of sites.	1) Fifteen sites received funding.	10,000

Operational Objective1- Outcome 2:Eco-tourism sites are being developed.

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1. Develop natural and ecological sites and trails	MoTA	EQA, NGOs, CBOS, LGUs, MoLG, MoPWH, MoA, Civil Defense, Ministry of Information	1) Fifteen sites and trails developed; 2) 50,000 visitors to each site developed by end of 2022 3) 50% increase in no of visitors to the area surrounding the site	500,000 USD for 5 sites, and 150,000 for 10 trails. Total 650,000
2. Promote and facilitate the private and NGO activation and utilization of natural sites for eco-tourism	MoTA	EQA, NGOs, MoA, LGUs, CBOs, Private sector organizations	4) Fifteen sites utilized in partnership with local CBOS and NGOs or private sector.	10,000
3. Develop support services to the newly developed sites that are sustainable in terms of impact on the environment and natural resources. Examples: utilization of renewable energy, water conservation and harvesting, water and energy efficiency in support services; dependency on local community; utilization of food and other local product that are (fair trade and / or sustainably grown; utilization of locally produced products).	MoTA	EQA, Partners of sites to be developed, LGUs, COBs, NGOs, located or working in the area of the sites to be developed, MoE.	1) 30% Percentage of energy utilized for support services of ecotourism is renewable. 2) 50% Percentage of water utilized is harvested water. 3) 50% Savings in water. 4) 50% of treated wastewater is reused. 5) At least 10% of local community members benefiting from the development of the site. 6) 70% of products utilized in the support services are local / fair trade or sustainably produced.	300,000
4. Support in Implementation of a pilot case of ECO- tourism in cooperation with local community that integrates development of an environmentally sensitive area; environmentally friendly support services.	EQA /MoTA	Partners of site selected, LGUs, NGOs, CBOS, active in the selected pilot area.	1) One Site identified of the 5 sites identified in activity 1 is considered a best case to be integrated in the regional best location for eco-tourism.	200,000

Operational Objective2- Outcome 3: policy to promote eco-tourism is developed

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1. Mainstream Ecotourism into local planning	MoLG	LGUs, MoTA, EQA, MoF,	1) Updated manual on SDIP and physical planning. 2) 100% of LGUs that undergo new SDIP development integrate eco tourism in their SDIP process. 3) 100% of LGUS that undergo development of new physical plans integrate eco tourism	50,000
2. Integrate eco tourism sites into national spatial plan	MoLG	EQA, MoTA Higher council of planning	1) National spatial plan integrates designated areas for eco-tourism	100,000
3. Revise (drafted) updated tourism legislation to facilitate the integration of SCP principles and measures in the tourism sector	MoTA	EQA, MoA, relevant unions, national team.	1) Updated regulations integrate SCP.	30,000
4. Support local authority or an NGO with the development of financial charges/ Fees on eco-tourism site	MoTA	MoLG, MoA, EQA, NGOs	1) Four case studies are prepared; with one in GS.	80,000
5. Prepare and disseminate guidelines for selecting Eco-tourism sties and trails as designated eco-locations	EQA	MoTA, NGOs	1) Guidelines prepared and utilized for selecting ecotourism sites.	40,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
6. Prepare local guidelines and / or adapt regional guidelines and disseminate them; guidelines will cover how to apply policies and actions to minimize the physical impact of tourism activity Examples of guidelines: (e.g. codes of conduct, visitor management measures, education activities, voluntary agreements). Note: Mediterranean Action Plan on SCP will prepare relevant regional guidelines on the subject).	EQA	MoTA, other partners of sites to be developed, private sector, NGOs,	1) Three guidelines developed and / or adapted. 2) At least 50% of institutions working in the sector; has received a copy of the developed guidelines.	100,000
7. Support the Implementation of site management Guidelines through pilot projects (example pilot project supported by EQA above)	EQA	MoTA, other partners of sites to be developed	1) One pilot site developed through EQA support utilizes all guidelines in management of site. 2) All management partners of the sites developed during the SCP NAP has been introduced to the guidelines.	150,000

Operational Objective3- Outcome 4 Awareness and capabilities of various stakeholders is supportive of eco-tourism

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
1. Conduct an awareness-raising campaign for 'off the beaten track' sites. This may involve design and dissemination of information / promotional materials; an interactive web-based wiki-site open to providers, users (tourists) and hybrids ; the design of alternative itineraries ; combination with community-based tourism offerings, etc. Materials / web content should be available in multiple languages.	MoTA	NGOs, tourism promotion agencies, EQA, MoE, MoA	1) 25 of sites promoted (includes new sites and existing site, and to be developed sites) 2) At least 5,000 visitors to each site per year.	15,000
2. Encourage marketing and communication activities focused on promoting the sustainable destinations in the international and national markets (e.g. flagship events; participation to international fairs, exhibitions and major public events; agreements with online tour operators and other intermediaries; web-marketing and thematic publishing).	MoTA	Paltrade, institutions responsible for eco-tourism sites management. Ministry of Information,	1) 50% of touristic companies targeted. 2) 25% of touristic companies promoting ecotourism.	25,000
3. Prepare a guide for teachers on eco-tourism sites showing the socio-economic and environmental impacts.	MoE	EQA, MoTA, NGOS, MoLG	1) Guide prepared.	100,000

Outputs/interventions	Responsibility	Partners	Target Indicators to be achieved by 2022	Estimated Budget (USD)
4. Conduct a focused campaign in 2017 to schools and universities on eco-tourism	EQA	MoE, EQA, Universities, LGUs, Schools, NGOS	1) 20% of schools targeted in the campaign. 2) No. of persons targeted. 3) 50% of universities targeted. 4) 10% of schools visiting ecotourism sites 5) 8,000 students visiting ecotourism sties through their universities or schools.	100,000
5. Promote participation in the Mediterranean fair dedicated to sustainable tourism destinations and green tourism operators in the region.	MoTA EQA	EQA, Paltrade, private sector.	1) Ten institutions participate in the event.	25,000
6. Conduct awareness to tourism service providers on new markets by integrating eco tourism or by obtaining eco-labeling.	MoTA	EQA, PSI, Higher council of Media, NGOs	1) 50% of service providers targeted.	40,000
7. Conduct teachers seminar on the new guideline for teachers developed on eco-tourism.	MoE	NGOs	1) 1,000 teachers	20,000

4. Chapter Four: Mainstreaming SCP in the Construction and Housing Sector - Promotion of Green Buildings and Green Public Procurement of Construction Activities

4.1. Background

The construction sector is a vital economic sector to the Palestinian economy. In 2015; 15.6% of Palestinians employed persons aged 15 years and above are working in the sector, equivalent 150 thousand persons[64]. However the sector is characterized by being exclusively male dominant; women participation in the construction sector is less than 1% women of employment (Figure 4)[65].

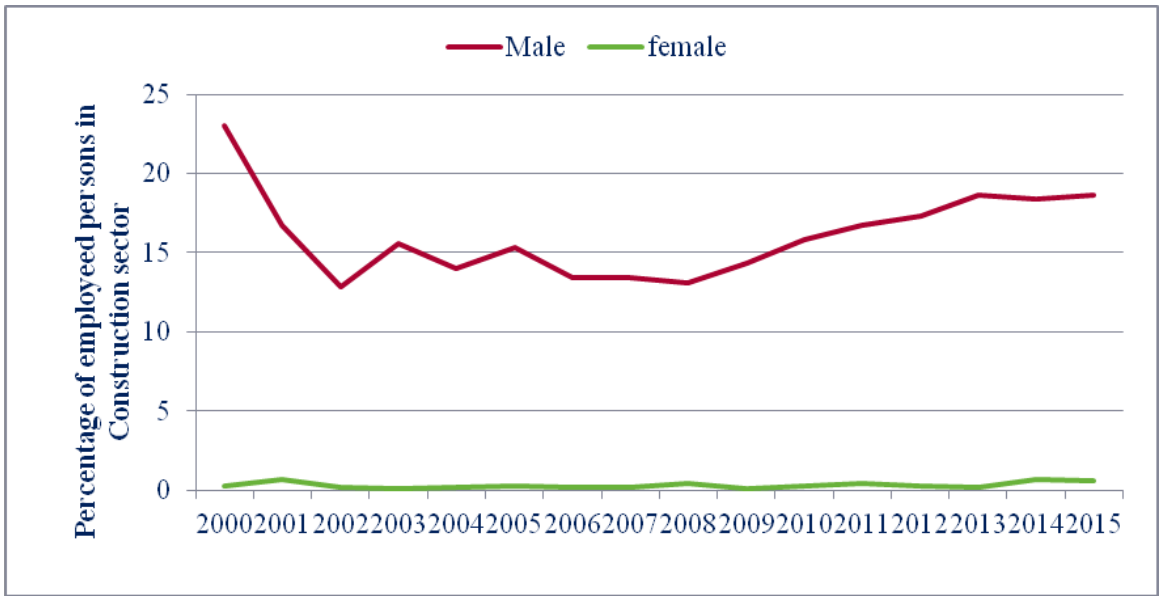

Figure 4: Percentage of employed persons in construction sector aged 15 years and above by Sex. [66]

Construction sector absorbs 18.6% of men employment in Palestine and characterized mainly by informal employment[67]. About 40% of all Palestinian construction employees work in Israel or in Illegal Israeli colonies[68]; which about is 71,700[69] persons. In the Palestinian construction

[64] PCBS, 2016. Labor Force Survey. Unpublished data.
[65] Source: PCBS. Percentage Distribution of Employed Persons Aged 15 Years and Above from Palestine by Sex and Economic Activity, 2000-2015. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/employment-2015-01e.htm Last accessed 11 June 2016.
[66] Source: PCBS. Percentage Distribution of Employed Persons Aged 15 Years and Above from Palestine by Sex and Economic Activity, 2000-2015. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/employment-2015-01e.htm Last accessed 11 June 2016
[67] The Portland Trust (2013) Beyond Aid: A Palestinian Private Sector Initiative for Investment, Growth and Employment. November 2013.
[68] The Portland Trust (2013) Beyond Aid: A Palestinian Private Sector Initiative for Investment, Growth and Employment. November 2013.

sector there are 65,500 workers in the WB and 12,100 workers in GS[70]. Of those only 8,023 people (2014)[71] are working in 536 enterprises; the remaining are working on daily basis as informal employment or in the informal sector. The construction sector is a high risk sector for the workers, and considering that it is characterized by informal employment; it is critical to integrate measures to reduce these risks. Decent employment is critical for the workers in the sector, and this can come hand in hand by introducing proper occupational health and safety (OHS) policies and labor protection in the workplaces of construction sites.

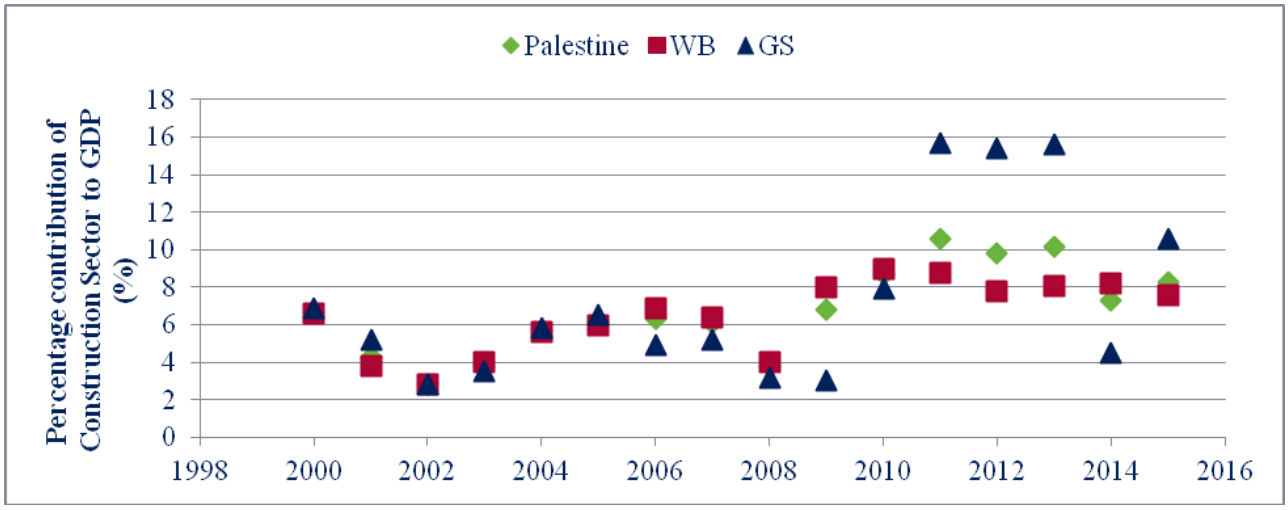

Figure 5: Percentage contribution of construction to GDP (PCBS)[72].

In 2014 the construction sector contributed with 7.3% to the GDP, preliminary estimate of PCBS for 2015; indicates that it has contributed to 8.3% of GDP[73] (Figure 5). According to 2014 statistics, the Total value of expenditures on building construction and maintenance was 1,363.4

[69] PCBS, 2016. Labor Force Survey. Unpublished data.
[70] PCBS, 2016. Labor Force Survey. Unpublished data.
[71] PCBS. Number of Enterprises, Employed Persons and Main Economic Indicators in Palestine For Construction Activities, 2014.http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Number%20of%20Enterprises%20and%20Employed%20Persons%20and%20Main%20Economic%20Indicators%20in%20Palestine%20For%20Construction%20Activities%20,%202014.htm Last accessed June 11 2016.
[72] PCBS. Percentage contribution to GDP by region and economic activity for the quarters of the years 2000-2015 at constant prices: 2004 is the base year. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Percent%20%20%20%20%20%20%20%20%20%202000-2015%20%20%20%20%20%20E.htm Last accessed June 11 2016.
[73] PCBS. Percentage contribution to GDP by region and economic activity for the quarters of the years 2000-2015 at constant prices: 2004 is the base year. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Percent%20%20%20%20%20%20%20%20%20%202000-2015%20%20%20%20%20%20E.htm Last accessed June 11 2016.

Million USD distributed as follows: 43% on expenditures on new buildings and additions; 20% on current maintenance for existing buildings; and 36% on capital improvements for existing buildings[74]. It is important to note that of the total 590.1 Million USD expenditure on new buildings, private sector expenditures amounts to 93.6%; followed by governmental at 4.7%; and UNRWA at 1.6%[75].

The majority of housing units (80.9%) are privately owned (2015)[76]. The ownership is a motive for improving the housing units to reduce operational costs (i.e. introducing efficiency measures); provided that households' owners have sufficient resources and knowledge about the issue, and provided that it is feasible. However this is faced with an obstacle that most of the households (about three quarters) finance their home construction through household savings or family legacy[77]. In such situations, the introduction of green building features into buildings (new or existing); will depend on the availability of funds for such priorities.

According to the Portland Trust report in 2013; a large proportion of the activities in the sector are unregistered, and employ old technology; which results in low production and production inefficiencies[78]. Therefore, the sector could benefit from developments to be shifted towards more sustainable; through enhancing efficiencies of production, through increased economic productivity and reduced natural resources consumption.

The operation (utilization) of Housing consumes 47.1% (calculated based on values presented by PCBS[79]) of total energy consumed in the country. However, buildings were not constructed in a manner to reduce energy utilization. Thus existing housings and buildings could benefit economically, socially and environmentally by integrating resource efficiency in buildings' maintenance; particularly that the value of expenditure on maintenance for existing buildings contributed to 20% of the total value of expenditures on building construction and maintenance combined in 2014[80].

[74] PCBS. Main indicators for Existing Buildings Survey in Palestine in 2014. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Main_Exi_e.htm Last accessed June 11 2016.
[75] PCBS. Main indicators for Existing Buildings Survey in Palestine in 2014. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Main_Exi_e.htm Last accessed June 11 2016.
[7676] Palestinian Central Bureau of Statistics, 2015. Housing Conditions Survey,2015: Main Findings. Ramallah -Palestine.
[77] Ministry of Public Works. Palestine Housing Sector Profile: Executive Summary. http://www.mpwh.pna.ps/pdf/HSprofile.pdf last accessed June, 11, 2016.
[78] The Portland Trust (2013) Beyond Aid: A Palestinian Private Sector Initiative for Investment, Growth and Employment. November 2013.
[79] PCBS, 2013. Energy Balance of Palestine in Terajoul, 2013. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Energy-2013-11e.htm last accessed June 11 2016.
[80] PCBS. Main indicators for Existing Buildings Survey in Palestine in 2014.http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Main_Exi_e.htm Last accessed June 11 2016.

In 2007, there were 919,801 housing units; PCBS projections for 2017; that it would be 1,124,063[81]. In 2015; there were 9,214 licenses issued with a total of 3,987,500 square meters, of which 6,478 licenses are for new buildings (Figure 7)[82]. Thus integration of green buildings elements in new constructions will have a long term future impact on these buildings for years to come. Addressing this issue requires addressing both the demand and the supply side and interlinks among them. In order to promote green buildings features in the upcoming buildings it is important to increase the demand by increasing the awareness and knowledge of people; it is important to address the supply / production side by ensuring that there is sufficient technical competences and knowledge and access to technology, combined with intermediate links; such as access to funds, certification systems, and appropriate policies. Furthermore, there is a strong opportunity to integrate some of the green design elements in the reconstruction of GS; where 171,000 housing units were impacted by 2014 war, of which 11,00 completely destroyed, 6,800 severely damaged, 5,700 had major damage; and 147,500 was impacted by minor damage[83].

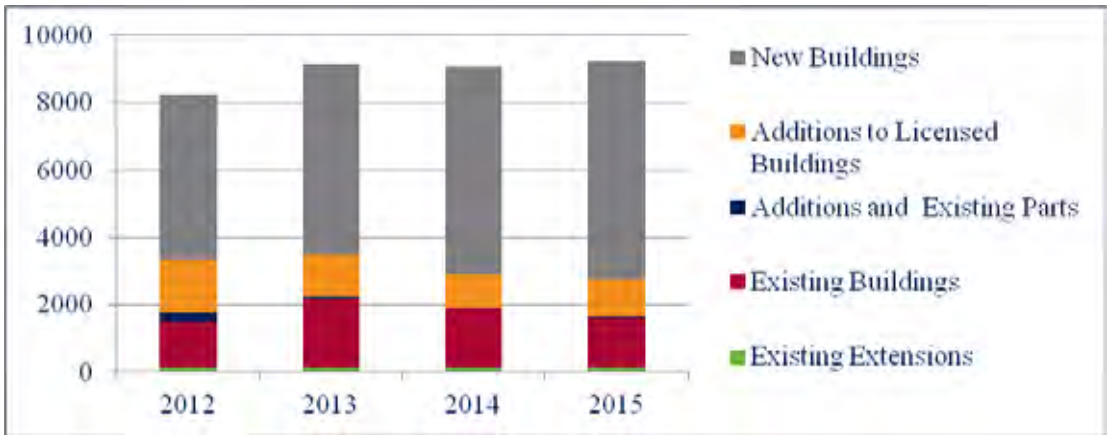

Figure 6: Number of construction Licenses per year (various years 2012-2015)[84]

It is important to note that 9% of the total energy consumed by households is solar energy mainly resulting from utilizing solar water heaters; where 56.5%[85] of the households have one. Nevertheless it is important to note that Electricity consumption per households has increased

[81] Palestinian Central Bureau of Statistics, 2009. Housing Projections up to 2017. Ramallah – Palestine.
[82] PCBS. Building Licenses Issued in Palestine* During 1999 to Fourth Quarter 2015. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/e_series_BLic_2015q4.htm last accessed, June 12, 2016.
[83] State of Palestine. Prime Minister's Office. 2016. Summary Report for the Reconstruction of the Southern Governorates – National Office of Gaza Reconstruction. 31.May 2016.
[84] PCBS. Building Licenses Issued in Palestine* During 1999 to Fourth Quarter 2015. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/e_series_BLic_2015q4.htm last accessed, June 12, 2016.
[85] PCBS. Selected Indicators of Household Energy, January 2015. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/HE-%20EM1%202015.htm Last accessed June 11, 2016.

from an average of 275kw/h in 2009 to 306 kw/h in 2015[86]; indicating an average increase in average household consumption at about 2% annually. Therefore addressing awareness of households on means to reduce and increase efficiency of energy in the households is important.With the introduction of pre-paid meters; reaching 41.7% of households in 2015[87]; some of the poorer families cannot have economic access to energy; although basic minimum is paid for by the Ministry of Social Affairs for those under deep poverty line; in many cases households with low income might save on heating of households. In the "severe" for Palestinian climate; cold weather conditions, where houses are built mostly to be cool in the summer; rather than warm in the winter; this might result in sub-optimal temperatures; resulting in deteriorating health conditions and worsen the quality of life. Hence, introducing renewable sources for energy for poorer households, or energy efficient is of utmost importance as it gives these people economic access to energy. The increase in absolute consumption is necessary and should be clearly distinguished from the "rebound effect".

The total number of schools is 2856 schools, of which 2,144 in the WB and 712 in GS. Of these schools the government owns 1928 schools. Most of public schools do not have heating; which results in suboptimal conditions for learning, and jeopardize the health of the pupils attending the school. Introducing solar energy and solar heating of water will result in improved conditions for learning and improved health for the students.

There are several initiatives in Palestine that supports the Greening of buildings and the introduction of solar energy, these include the introduction of green buildings in schools, the introduction of PV in various public buildings in GS and in schools, obtaining ISO14001 for the court house of Tulkarem, the construction of the Palestinian Museum as a Green Building, certified by LEEDS. Furthermore, the Palestinian government has created a fund for retrofitting governmental buildings to become energy efficient. This creates an opportunity for greening governmental buildings through the fund established, combined with continuation of greening of schools. It is important to note that the municipal development and Lending Fund, which provides funding to Local Authorities for development of infrastructure, requires the LGUS to prepare and implement an Environmental management plan for the construction phase. The government local and national are also responsible for public infrastructure projects in the country, thus there is a strong potential for integration of green procurement of infrastructure including buildings in the public sector.

According to the water statistics; the daily consumption of water per capita in the domestic sector is 79. Liters; it is important to note that some governorates reaching as low as 40 Liters

[86] PCBS. Selected Indicators of Household Energy, January 2009-2012, 2015. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/HE-%20ETime%202015.htm Last accessed June 11, 2016

[87]PCBS. Percentage Distribution of Households by Region and Type of Electricity Meter Used, January 2015. http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/HE-%20EA3%202015.htm June, 13 2016.

per capita per day.[88] The domestic consumption includes not only households, but all purposes other than agricultural. The water allocation per capita consumption is much lower than WHO standards of 150 Liter per capital per day[89]. Therefore, addressing water conservation is not seen as a priority, where focus should be on improved water practices to ensure proper hygiene and appropriate quality of life.

Waste generation from households is not measured; however in 2012; apparent generation rate from all municipal sources was 0.95 kg per capita per day[90]; of which about 60% is organic waste, and about 29% are materials that could be recycled (Paper and cardboard, metals, glass, and plastic)[91]. There have been several attempts to increase recycling rates; however the sector is highly linked to market limitations and restrictions of the Israeli occupation. During SCPNAP focus will not be given to waste generated from households. However since agricultural sector is another sector that will be addressed in the SCP action plan; if during the coming 5 years; progress is achieved in the agricultural sector for creation of market for compost; then there will be a strong potential for valorization of organic composted of household and municipal waste in the production of compost in the next SCP action plan.

On the other hand, construction and demolition waste is one of the problems facing Palestine; with no designated locations or methods for recycling, other than random dumping. This problem is even more exacerbated with illegal import of construction and demolition waste from the Israeli Side. The sector is also not regulated, and solutions are left to individual local authorities. The national government is currently working on the development of the legal framework for the construction and demolition waste; thus would be the first step on the road. Therefore, it is recommended that the mainstreaming of SCP principles in this new regulation.

Based on the analysis of the sector; the priority targets for SCP in the construction and housing sector would be focusing on green buildings, with emphasizes on the energy. Greening buildings is one of the areas towards sustainable cities, and towards achievement of increased energy security.

[88] PCBS. Table 7: Quantity of Water Supply for Domestic Sector, Water Consumed, Total Losses, Population and Daily Allocation per Capita in the West Bank by Governorate, 2014 and PCBS Table 8: Quantity of Water Supply for Domestic Sector, Water Consumed, Total Losses, Population and Daily Allocation per Capita in Gaza Strip by Governorate, 2014. Variety tables of water 2014. Excel version. http://www.pcbs.gov.ps/site/lang__en/771/default.aspx Last accessed June 13, 2016.

[89] PCBS. Table 7: Quantity of Water Supply for Domestic Sector, Water Consumed, Total Losses, Population and Daily Allocation per Capita in the West Bank by Governorate, 2014 and PCBS Table 8: Quantity of Water Supply for Domestic Sector, Water Consumed, Total Losses, Population and Daily Allocation per Capita in Gaza Strip by Governorate, 2014. Variety tables of water 2014. Excel version. http://www.pcbs.gov.ps/site/lang__en/771/default.aspx Last accessed June 13, 2016

[90] Sweepnet (2014): Palestinian National Country Report 2013

[91] Sweepnet (2014): Palestinian National Country Report 2013

4.2. Strategic and Operational objectives

Strategic Objective: Promote of innovation and knowledge and the Integration of practices, which enhance resources efficiency and contribute to natural and human capital protection, throughout entire planning and construction process and life cycle of buildings.		
Operational objective 1: Enhance the role of public policy and decision making, and leadership by example for triggering the greening of the building sector.	**Operational objective 2:** Promote Retrofitting existing energy- and resource intensive buildings stock	**Operational objective 3:** Sensitize and raise awareness of all stakeholders involved in housing and construction, including local authorities, consumers, professionals of the sectors and institutions and develop capacities for mainstreaming green elements of buildings and sustainable life style in using buildings.

- Outcome 1: Policy for Green Building promotion is developed.
- Outcome 2: Leadership by example -Promoting Green investments in public buildings.
- Outcome3: Retrofitting and maintenance of existing intensive energy buildings stock is being conducted.
- Outcome 4: Awareness on green buildings and sustainable life styles in using buildings is increased.
- Outcome5: Stakeholders have the capacities to integrate sustainable consumption and production principles in construction.

4.3. Identified initiatives and outputs

The initiatives identified falls under six components: 1) sustainable public procurement component 2) waste management component, 3) regulatory component, 4) energy component, 5) capacity building and awareness component; and 6) certification component.

4.3.1. Sustainable Public procurement component

Integrating green elements in Public schools

1. **Greening public schools**

a) Build Green Schools: Green schools has already been introduced in several new schools, an increase in the number of new green schools is envisaged. Local authorities are responsible for

securing budgets for new schools from the educational taxes in municipalities. The ministry of education also supports municipalities in identification funding sources for priority schools. In many cases the budget and the design of the schools does not integrate green elements. Hence, additional budgets are required for switching to green schools. The integration of green elements results in reduction in operational costs, which is taken over by the MoE; hence it is critical that MoE supports local authorities for identification additional resources to build green schools instead of regular schools. It is expected that during the life time of the plan; at least five new green schools will be constructed.

Introduce environmental features in existing school

Integrating environmental features in existing schools is another important element for greening schools. Elements such as cardboard and paper reuse are to be considered in schools where school environmental clubs could pioneer with such initiatives. Aspects such as grey water recycling in schools are to be integrated when possible, under the condition of developing a system in the school that can ensure the safety of pupils in dealing with the water in irrigation.

Public schools do not have hot water nor have heating; thus introducing solar water heating in schools is very important. Furthermore, introducing renewable energy in schools leads not only to reduction of operational costs, but also availability of energy to introduce heating in schools. Hence, it is seen critical to introduce gradually in schools photovoltaics (PV) for energy generation, and solar water heater. It is important to note, that solar water heater should be accompanied by a recirculation system to ensure that no water is wasted while waiting for the hot water. It is envisaged that in the future all public schools will integrate PV units.

Lobby with donors

Several of the new infrastructure developed or reconstructed in Palestine is supported by either humanitarian aid or official development assistance. Thus it is important to discuss and lobby with donors to integrate environmental features in their design and implementation of infrastructure.

Historical buildings are at the core of protecting the cultural heritage of Palestine; safeguarding these buildings through renovation, and rehabilitation is critical. Thus it is important that directing resources for protecting such heritage, while at the same time integrating green environmental features in the renovation process. These building when renovated are to be utilized for public use.

Green Public Construction

1. Update governmental technical specifications for construction projects to integrate green elements in construction of new infrastructure. The ministry of Public works and Housing is responsible for the preparation of technical tenders for public infrastructure works. At the moment, environmental considerations in infrastructure are not considered in the technical

specifications. The update of specifications should integrate two components; one related to minimum environmental technical specifications in infrastructure that should be compulsory for all infrastructure works; these include issues such as integration of environmental management plans in the tendering documents, their implementation and monitoring. In addition, there is a need to develop green governmental procurements of infrastructure; that could be utilized as preferred options for procurement; these include design features that reduce energy and water use as well as emissions. A cost benefit analysis of various green design features should be evaluated prior to starting tender preparation.

2. Promote construction of new buildings and infrastructure to be Green: Based on the standards that has been developed on green infrastructure and buildings by MoPWH; it is important to secure financial resources to integrate the green elements in the design and implementation of the new infrastructure. Thus it is foreseen that additional financial resources to the regular construction would be required.

3. Build an ecological green building model center for EQA. EQA is the lead environmental agency in the country, and has to introduce models of sustainability in their practice. It is critical that EQA develop an ecological green building to become a model center that will be utilized by EQA and could be utilized as a demonstration for green ecological buildings. Leadership by example is the only way forward for introducing sustainable models. Hence, it is foreseen that EQA will work on identification of a site for such a center, and develop its design in a manner that it can be utilized as ecological green model building. It is foreseen that by the end of the plan; detailed design and tender documents are completed, including securing financial resources for implementation.

4.3.2. Waste Management Component

Develop a master plan for management of construction and demolition waste

Construction and demolition waste is not managed properly in the country. Thus it is critical to develop master plans for its management that covers one master plan for GS and another for the WB. The master plan should identify systems for collection, transfer, recycling and disposal; including the roles and responsibilities of the various actors. At the initial phase of the master plan development; preliminary locations for disposal are identified, to be subjected to EIA before concluded on final locations. The master plan should identify not only management options and responsibilities, but also monitoring and reporting on master plan implementation.

Promote household organic fraction valorization of municipal waste

Introducing valorization of organic fraction is critical for introduction of SCP in housing. Households generate significant quantities of organic waste. However, waste management authorities (local authorities and Joint service councils) do not have sufficient incentives to introduce such systems due to high operational costs. Therefore, incentives for municipalities and joint service councils are critical to push local government to lead in the sector. Incentives

could be in the form of financial rewards for local governmental units or in terms of subsidy to achieve cost recovery at the piloting phases. If such projects are properly developed, they would later qualify to climate credits from the UNFCC. PENRA is planning to increase the energy generated from biogas to reach 21 mega Watts by the end of the plan.

4.3.3. Regulatory Environment Component

Two critical development on the regulatory framework are required; one related to updating the building and licensing regulations to integrate SCP principles and the second related to the update of the environmental impact assessment policy.

The building and licensing regulations

The current building and licensing regulations does not integrate important environmental and social aspects that should be an integral part of the construction processes. The following issues should be addressed in an updated regulation:

a) Identify elements of Green Building to be compulsory for all new buildings.
b) Introduce EMP as a mandatory aspect in all construction projects.
c) Introduce OHS in construction works as Mandatory.
d) Obtain environmental approvals for relevant construction projects..
e) Integration of insurance to construction projects; including for daily workers and third party insurances.
f) Integration of mandatory considerations of safe design taking into consideration adaptation to natural hazards and climatic shocks.
g) Integrate clear mechanism for enforcement of the law; including inspection.
h) Integrate proper penalties system that ensures the implementation.
i) Integrate proper management of C&D in the updated bylaw, including integration of strict penalties for violations.

Introduce environmental assessment and approvals in construction sector

The construction sector currently does not undergo environmental assessment or approval processes, unless required so through donor's own procedures. This results in developments that are conducted in a manner that can negatively impact the environment. In order to address this weakness the following activities are planned:

a) Prepare criteria for construction that should undergo an Environmental impact assessment for construction projects (example by size, by type of use, by location, by potential impact on municipal and national infrastructure, by impact on neighborhoods during construction, operation and demolition phase, and by impact on environmental systems. Based on the criteria developed; identify projects that should undergo, full EIA, initial EIA, and those requiring environmental approvals.

b) Classify construction projects and identify those that require environmental approval from EQA based on the criteria developed.

c) Update EIA policy implementation procedure to allow the introduction of EIA procedures on construction projects that have significant impact, such as developments of new cities, major roads, and major infrastructure.

d) Introduce environmental management plans for design phase, construction phase and operation phase of infrastructure as mandatory for big infrastructure projects.

e) Ensure development of proper monitoring procedure on environmental aspects of construction, including abiding to environmental management plans, inspection and reporting between the various involved institutions is clarified.

In order to ensure implementation of the new regulatory framework, EQA staff should be trained on how to screen construction project and implement the new procedures, including on conditions that could be utilized in construction project to ensure environmental protection. Furthermore, training on inspection and monitoring for the subject are as well required.

Utilize Strategic Environmental assessment (SEA) on physical plans

The guidelines for development of physical plans does not undergo SEA at the moment; the EIA policy does suggest that physical plans should undergo SEA, however up to date; not a single policy or plan has undergone SEA so far. The EIA policy should be updated to ensure that all plans are subject to SEA. This should be conducted in parallel to the update on the guidelines for development of physical plans, as these should be updated to ensure that local authorities conduct a strategic environmental assessment on these plans prior to their disclosure for objections.

Enforcement of SEA utilization on physical plans should be conducted by EQA, and should be supported by the higher Council for planning and zoning. In order to facilitate the implementation of this intervention; it is important to train EQA staff on how to review SEA, and how to support LGUs during the SEA of the physical plans.

4.3.4. Energy component

The following interventions were foreseen for energy within construction sector:

Review of the instructions associated with renewable energy

The instructions associated with renewable energy have been enacted recently; however there is a debate on its effectiveness to move towards renewable energy. Debates and discussions includes issues in relation to connection fees, capabilities of electricity grid to take variations in loads of renewable energy feeding the network, and the time frame within a year during which the energy is allowed to be accounted for in the net metering. Therefore, within the coming five

years, a technical and financial study would be required to evaluate effectiveness and facilitate discussions among stakeholders.

Introduce energy efficiency and PV in Governmental owned buildings

PENRA has introduced through the ministry of finance a public fund to retrofit governmental buildings. During the coming five years it is expected that at least 30 buildings will be retrofitted with a total fund cost of 1.5 million USD. Furthermore, it is expected that several governmental buildings (in addition to the schools discussed under greening schools); will integrate renewable energy; these include schools, hospitals, agricultural farms, and care providers facilities. It is expected that a total of 150 public buildings per year will be equipped with PV per year (including schools) with an expected budget of 2.25 Million USD.

Promote Retrofitting existing energy- and resource intensive buildings stock

Legal Instructions to force intensive energy consumers to undergo an audit is critical to start the retrofitting. PENRA should issue clear instructions that force every high energy consumer to undergo an audit and later retrofitting. In order to do so; the instructions should define the criteria for identifying high energy consumer for which the audit becomes mandatory. As soon as the criteria to be developed, a list of intensive energy building stock will be developed.

Based on this list PENRA will start conducting energy audits for these building; PENRA has the capability of conducting 50 audits per year (both private and public); however this requires sustaining their auditing teams as official employees of PENRA.

During the planning period; it is expected that PENRA could reach an agreement (pending instructions issuing); with 10 establishments per year, for which energy audit could be conducted. It is envisaged that at least 50 establishments will be audited during the upcoming five years. Furthermore, it is expected that at least 50% of these establishments will undergo retrofitting during the planning period to save energy.

In order to facilitate continuation and support for energy efficiency, energy audits, and renewable energy it is important to increase the capability of various stakeholders, and electrical schools on these issues. This is also critical for maintenance engineers at industries that have high energy consumption. It is expected that about 100 persons would be trained on principles of conducting energy audits, introducing energy efficiency, and on renewable energy installations.

4.3.5. Capacity Building and Awareness Component

First: Local government awareness and training program

Increase awareness of municipalities on green building, energy efficient building and new codes of construction and access to finances for municipal buildings for public use. This should cover the higher management tier in municipalities; furthermore this should be associated with capacity building programs to responsible officers and engineers in municipalities on licensing,

inspection, monitoring, C&D waste management, EMP, and reporting on environmental issues associated with green elements.

Second: design companies and engineers Capacity Building Program

Develop and implement a capacity building program targeting design companies and engineers working in NGOs, local governmental units, private sector, and governmental agencies on infrastructure:

a) Targeting working engineers; where it is planned that 1000 working engineers will be trained; it is expected that 20% of total design companies would be trained during this component.
b) Targeting students in engineering colleagues; where curricula's update would be required at all engineering colleges to integrate EMP; green elements in construction, and updated licensing procedures. It is expected that about 2000 engineers will graduate from universities during this planning period and have been trained on the updated curricula.

Third: Consumers behavior Change - awareness program for households

In order to create demand to greening buildings it is important to increase the knowledge and awareness of the population on various aspects including:

a) Importance of Retrofitting and maintenance of existing buildings.
b) Access to finances for green building elements, retrofitting, and maintenance of existing buildings.
c) Advantages and costs savings potentials for green buildings.
d) Replacement of materials examples:efficient lighting and day-lighting; more efficient electrical appliances and heating and cooling devices; improved cook stoves,
a) Improved insulation; passive and active solar design for heating and cooling; alternative refrigeration fluids, recovery and recycling of fluorinated gases;
e) Rationalization of water use while maintaining proper hygiene;
f) Rationalization of energy use;
g) Reduce, recycle and reuse principles of waste.

It is expected that during the upcoming five years, 400 workshops will be conducted distributed on all governorates in Palestine. Furthermore, the awareness program might include at least five Television and five radio spots per year. It is important to integrate an evaluation in each workshop, including reporting on the following:

1) No. of households targeted.
2) No. of messages addressed.
3) % of households that know about green buildings aspects.
4) % of households that know about choices and good behavior in terms of energy use,

5) % of households that know about choices and good behavior in terms of water use and good hygiene.
6) % of households that know about choices and good behavior in terms of and waste generation and management.

Fourth Construction companies awareness and training program

Construction companies should be aware of green technologies, and various standards associated with them; however this is not sufficient alone. A capacity building program should be conducted to ensure that they are capable of introduction of these aspects. The capacity building programs for construction companies should address both technicians and engineers. It is expected that 1,000 technicians and 100 engineers would be trained. The topics of training should include: waste management, environmental aspects of construction, how to develop, implement, monitor and report on EMP for construction, construction aspects related to energy and water conservations, renewable energy installation, safety in construction sites, and grey water systems.

4.3.6. Certification component

There have been several efforts in certification; however what was done is not sufficient. Although the engineering union has developed a code for green building, energy efficient buildings, none of these codes has become an officially accredited code in Palestine. What is required is acknowledging these codes or an upgrade to them through PSI to allow certifications process. Furthermore, it is important to ensure that there are companies available in both WB and in GS that are capable to give such certification. It is foreseen that at least four certification companies in green buildings and energy efficiency and ISO140001 should be developed. The plan envisages that at least 30 buildings would be certified during the upcoming five years.

4.4. Estimated budget:

The initial estimation of the budget for implementation SCP in construction and housing sector is estimated at about 12.75 Million USD distributed as follows: 71% for operational objective one; 11% for operational objective two; and 18% for operational objective three.

4.5. Matrix for implementation SCP in Housing and construction Sector

Operational objective 1: Outcome 1: Policy for Green Building promotion is developed

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
1) Update the building and licensing regulations a) Identify elements of Green Building to be compulsory for all new buildings: b) introduce EMP as a mandatory aspect in all construction projects c) introduce OHS in construction works as Mandatory. d) obtain environmental approvals for relevant construction projects (see project 4 below). e) integration of insurance to construction projects; including for daily workers and third party insurances. f) integration of mandatory considerations of safe design taking into consideration adaptation to natural hazards and climatic shocks. g) integrate clear mechanism for enforcement of the law; including inspection. h) integrate proper penalties system that ensures the implementation. i) integrate proper management of C&D in the updated bylaw, including integration of strict penalties for violations.	MoLG	EQA, MoL MoPWH Engineering Association, LGUs,	1) New regulation is drafted and integrates all aspects requiring update. 2) New regulation approved. 3) No. of elements integrated 4) Environmental issues is part of the licensing process.	200,000

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
2) Develop a master plan for management of construction and demolition waste. Note: master plan to integrate options for disposal, recycling, collection, and transfer, including locations and responsibilities of actors in the management.	MoLG / EQA	EQA Engineering association MoPWH Contractors Union LGUs,	1) Preliminary master plan developed for GS by 2018 2) Preliminary master plan developed for the WB by 2018. 3) 25% of C&D waste is managed according to master plan recommendations by 2022. 4) EIA for locations for C&D disposal is conducted and locations are finalized by 2021. 5) Update preliminary master plans into officially approved master plans by 2022. 6) No. of violations reported by municipalities A and B on management of C& D waste. (No bases line for indicator exists; therefore, the reporting will start only with the monitoring of the SCP plan). Therefore, target indicator cannot be specified at the time.	150,000
3) Utilize Strategic Environmental assessment (SEA) on physical plans: 3a. update physical plan procedure to integrate environmental approvals of zoning and physical plans based on Strategic environmental assessment (SEA). 3b. enforce implementation of EIA policy; SEA component on physical plans.	EQA	MoLG Local authorities; Joint service councils for planning and development Higher Council for Planning	1) Procedure for development of Physical plan integrates SEA 2) 35% of new plans developed that has undergone SEA. 3) % of approved plans that has been revised to integrate SEA recommendations.	100,000

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
4) Introduce environmental assessment and approvals in construction sector: a) Prepare criteria for construction that should undergo an EIA for construction projects (example by size, by type of use, by location, by potential impact on municipal and national infrastructure use during operations, by impact on environmental systems). b) Identify construction projects requiring environmental approvals – however not necessarily requiring an EIA. c) update EIA policy implementation procedure. f) ensure development of proper monitoring procedure, including inspection and reporting between the various involved institutions is clarified.	EQA	MoLG MoPWH MDLF Local authorities	1) 100% of construction projects subject to environmental assessment. 2) Size of construction area (Square meters) undergone environmental assessment. 3) No. of construction projects received environmental approvals.	60,000
5) Promote 3R policies: introduce incentives for promotion of valorization of organic fraction of municipal waste through anaerobic digestion or composting.	EQA	MoLG Municipalities MoPWH MoF NGOs,	1) Policy developed and approved. 2) Budget allocated for policy implementation. 3) No. of projects initiated due to the policy. 4) Quantity valorized through these initiative	150,000

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
6) Review the instructions associated with renewable energy law	PENRA	EQA, NGOS, private sector organizations working on renewable energy, PFI for renewable energy, electricity providers	1) An evaluation conducted. 2) Discussion with stakeholders on the results of evaluation and future steps identified.	20,000
7) Establish Green or eco labeling standards for buildings:	PSI -PENRA	EQA PENRA Engineering association MOPWH	1) Green construction, energy savings, ISO 14001, and eco labeling is integrated as part of the Palestinian standards for buildings.	100,000
8) Lobby with donors to integrate green elements in projects they support: a) ensure integration for green elements in GS construction and reconstruction and in new infrastructure supported in WB and GS. b) to allocate budget for existing historical building for rehabilitation and use for public good that integrates green elements	Prime minister's office	MoF, NGOs, MoTA, EQA, and implementing agencies	1) No. of donors that are willing to integrate green elements in their infrastructure projects. 2) % of infrastructure costs supported by donors that have been mainstreamed to greening elements. 3) No. of buildings constructed that integrates green elements. 4) No. of historical buildings renovated in a manner that integrates green elements.	25,000

Objective 1 - Outcome 2: Leadership by example -Promoting Green investments in public buildings

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
1) Build an ecological green building for EQA .	EQA	MoPWH, Land Authority , MoF, PMO	1) Land identified and transferred ownership to governmental use for the benefit of EQA with a size ranging from 3 to 5 Dunums. 2) Study and detailed design completed. 3) Tendering documents ready. 4) Total funding for 3.7 Million is secured.	3,7 Million for construction; requires for design 400,000 by to 2022
2)Introduce PV on public buildings	PENRA	Local Authorities , EQA, MoH , Various ministries , Ministerial cabinet, MoE, MDLF , MoF	1) Increase by 150 buildings per year in the Number of schools and public buildings that have PV on rooftops. 2) Average renewable energy generated per building 10 kw	2,250,000
3)Introduce greening public schools a) build Green Schools. b) introduce PV on roof tops of existing schools c) introduce solar water heaters (with water recirculation systems) in schools. d) introducing grey water recycling f) introduce paper recycling / reuse	MoE	PENRA , Local Authorities , EQA	1) No. of new green schools (at least 1 school each year). 4) Increase in the No. of schools are furbished with solar water heaters. (increase by 200 schools)	3,000,000 Includes only costs for greening of new schools; introduction of greening items in existing schools).

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
4) Introduce energy efficiency in Governmental owned buildings a) audit of Governmental buildings; b) implementation of audit recommendations	PENRA	All governmental agencies that owns their buildings., EQA, MoF	1) 100% percentage of governmental owned buildings audited. 2) Thirty governmental owned buildings retrofitted.	1,500,000
5) Update governmental technical specifications for construction Projectsto integrate green elements in construction of new infrastructure.	MoPWH	EQA. PENRA, MoLG, MDLF, MoF, MoE, Engineering Association	1) Updated procurement manual of infrastructure. 2) At least 25% of new construction projects procured utilizing specifications that integrate green elements.	100,000 for technical specifications update
6) Promote construction of new buildings to be Green	MoF	MoPWH , EQA, MoLG, MDLF, Governmental agencies planning construction of new buildings	1) 25%. of new governmental green building constructed	1,000,000 (cost difference between regular construction and green construction)

Operational objective 2: **Outcome3: Retrofitting and maintenance of existing intensive energy buildings stock is being conducted.**

Outputs / Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
1) Identify establishments with high energy use:	PENRA	Chambers of commerce (CoC), PFI, EQA, MNE	1) Criteria for identification developed within 2017. 2) List of high energy use establishments developed by end of 2017.	10,000
2) Conduct mandatory energy audit for industrial and commercial sector buildings that has high energy use.	PENRA	CoC, PFI, , EQA, Selected establishments, MNE	1) Ten. establishments audited annually (total 50)	250,000
3) Select priority establishments to conduct retrofitting	PENRA	CoC, PFI,, EQA	1) Criteria for prioritization developed. 2) List of priority establishments identified.	5,000
4) Conduct feasibility studies for the selected establishments to demonstrate cost effectiveness of measures	PFI / CoC	PENRA, EQA, Selected establishments	1) Twenty establishments has undergone feasibility	150,000
5) identify possible financing tools and implement retrofitting	PFI / CoC	Bank of Palestine, PENRA, EQA , Selected establishments, MoF, PFI, CoC	1).ten establishments has identified sources for funding. 2) Ten establishments have conducted retrofitting. 3) 25% of energy is saved. 4) 50% of Total finances is secured for retrofitting.	Depending on feasibility results – estimated at 1,000,000

Operational objective 3: Outcome 4: Awareness on green buildings and sustainable life styles in using buildings is increased.

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
1) Increase awareness of households on SCP : a) on importance of Retrofitting and maintenance of existing buildings b) on access to finances for green building elements, retrofitting, and maintenance of existing buildings c) advantages and costs savings potentials for green buildings d) Replacement of materials examples:efficient lighting and day-lighting; more efficient electrical appliances and heating and cooling devices; improved cook stoves, improved insulation; passive and active solar design for heating and cooling; alternative refrigeration fluids, recovery and recycling of fluorinated gases; e) rationalization of water use while maintaining proper hygiene; f) rationalization of energy use; g) reduce, recycle and reuse principles of waste	EQA	PENRA, PWA, NGOS, water utilities, energy utilities, Municipalities, JSCs for waste management, MoE, Higher council For media.	1) 400 workshops in five years; distributed as 25 workshop per governorate. 2) Five TV spots per year. 3) Five radio messages or spots Per year. **3)** Workshop evaluations to report on: 1) No. of households targeted. 2) No. of messages addressed. 3) % of Households, that Know about Green buildings aspects. 4) % of Households, that Know about choices and good behavior in terms of energy use, 5) % of Households, that Know about choices and good behavior in terms of water use and good hygiene. 6) % of Households, that Know about choices and good behavior in terms of and waste generation and management.	300,000
2) Increase awareness to construction companies on green building elements and associated standards (green, energy, eco…etc)	Union of Contractors	Municipalities, Engineering association , Engineering Design companies., EQA , Universities, PSI	1) 25% of companies reached. 2) 25% of construction companies that Know about Green buildings aspects. 3) 10% of construction companies that implement aspects of Green buildings.	25,000

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
3) Increase awareness of municipalities on green building, energy efficient building and new codes of construction and access to finances for municipal buildings for public use.	MoLG	LGUs, EQA, MDLF, engineering associations, APLA, Universities	1) 100% of municipalities reached. 2) 25% of Village councils targeted. 3) % of municipalities that Know about Green buildings aspects. 4) % of LGUS that know about changes in the laws and licensing procedures. 5) % of municipalities that monitor implementation of green aspects newly introduced in their inspection process. 6) No. of municipalities that participated in the annual conference of the engineering association.	50,000

Operational objective 3 -Outcome5: Stakeholders have the capacities to integrate sustainable and consumption principles in construction

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
1) Develop and implement a capacity building program targeting design companies and engineers working in NGOs, local governmental units, private sector, and governmental agencies on infrastructure: a) component one targets working engineers b) component two targets students in engineering colleagues. c) component three targets engineering colleagues curricula's update	Association of Engineers	Universities, PENRA, MoPWH , EQA, Municipalities, Engineering department in various governmental agencies, NGOs, MoE	1) 1,000 working engineers trained. 2) No. of courses conducted. 3) 100 design companies (20% of total design companies) trained. 4) All engineering colleges modified their curricula to integrate elements of green infrastructure and green buildings. 5) All engineering colleges integrated in their courses EMP for construction. 6) 2,000 engineering fresh graduates are trained on the subject through updated curricula.	500,000 training and 100,000 curricula update Total: 600,000
2) Develop and implement a capacity building program targeting EQA staff. Topics: renewable energy, construction, and updated regulation and instructions, particularly in relation to the SEA, EIA.	EQA	NGOs, Association of engineers	1) 25 trainees to be trained each year (some employees could be trained on different subjects, through different trainings).	100,000
3) Develop and implement a capacity building program targeting construction companies on green buildings a) program for technicians: b) program for engineers Note: topics to be covered including: i) waste management, environmental aspects of construction, how to develop, implement, monitor and report on EMP for construction, construction aspects related to energy and water conservations, renewable energy installation, safety in construction sites, grey water systems,	union of contractors	Construction companies , Universities , MoPWH EQA, MoL, NGOS, Engineering association	1) 100 engineers trained. 2) 1,000 technicians trained.	600,000

Outputs /Interventions	Responsibility	Partners	Target indicators to be achieved by 2022	Estimated Budget (USD)
4) Develop and implement capacity building program to municipalities on green building covering: Licensing, inspection, monitoring, C&D waste management, EMP, and reporting	MDLF	Engineering associations, MoLG, Universities, APLA, EQA	1) At least one person from each municipality is trained	200,000
5) Introductory training to relevant stakeholders on principles of conducting energy audits, energy efficiency and on renewable energy installations	PENRA	EQA, CoC, PFI, Universities, Municipalities, MDLF, Private sector companies active in energy , Engineering association, Electrical companies, electrical technicians	1) 100 persons trained 2) 40. persons at least certified	100,000
6) Develop and implement a capacity building program on eco-/ Green / energy efficient certification	PSI	Private sector companies active in certification, Universities, NGOs, EQA, PENRA, Engineering association	1) Ten institutions that can conduct certification. 2) 30 buildings are certified buildings according to Palestinian adapted standards by PSI. 3) Ten buildings obtained international certification.	100,000
7) conduct training of trainers on Green Buildings	Engineering association	EQA, Universities, union of contractors, municipalities, MoPWH	1) 30 trainers trained. 2) No. of courses conducted.	200,000

5. Chapter Five: Monitoring and Evaluation of SCP-NAP:

Many indicators had been introduced to this NAP as a tool of monitoring and evaluation of the progress and achievement of the different objectives and goals. The monitoring of the various indicators is presented in this section. Utilizing the monitoring indicators presented below; EQA will report on the progress achieved on the SCP Action plan on annual bases. Furthermore, it will summarize the progress achieved on the intervention level, as well as any changes to the overall indicators achievements. It is important to note, that overall indicators might take more than one year to be updated; considering that these indicators are measured on lower frequency than annual bases. An annual report on achievements will be conducted by mid of the next year and shared with key stakeholders. After sharing the report, a discussion with relevant stakeholders is recommended to identify requirements to update or change the plan interventions or indicators as required.

By end of 2021; EQA should conduct an evaluation of the SCP NAP success, including lessons learnt and start the process of preparation for the next phase of planning for SCPNAP. During this process, it is important to identify future priority areas to focus upon and conduct the Strengths, weaknesses, opportunities and threats (SWOT) analysis for identification of possible interventions, policies, and strategies.

5.1. Monitoring of overall indicators

It is important to note that there are no surveys that measure households, individuals, farmers, or establishments awareness on environmental issues including sustainable consumption; therefore none of the indicators on sustainable consumption can be measured at this time. A decision has to be made if it is a priority to conduct a knowledge Attitude Practice (KAP) survey on the subject. If such a decision will be made; this should cover various aspects of environmental issues in all sectors – not only sustainable consumption and production in the sectors under focus in this strategy, i.e. housing and construction, tourism, and agriculture. Other environmental important aspects such as climate change, desertification, pollution, biodiversity, to name only few should be considered.

5.1.1. Monitoring of overall indicators on SCP in Tourism sector

According to PCBS the several of the required indicators are not measurable at this stage; however it was suggested to integrate the SDG indicators on sustainable tourism (under development within SDGs) as the overall indicators for the SCP in tourism sector. Under SDG 12: complimentary national indicators include an indicator No. 12.5 which is yet to be developed; this indicator addresses policies on sustainable tourism. If such indicator is developed and measured within the time framework of the SCPNAP; EQA will start utilizing it in reporting on sustainable tourism. In lieu with the development of complementary national indicators for

SDGS, with focus on sustainable tourism; it is important that EQA would discuss with relevant stakeholders (PCBS, and MoTA) at the time of development of such indicators to identify potential of integrating the following aspects:

1)Contribution of alternative tourism to tourism GDP; or contribution of sustainable tourism to tourism GDP.
2)Increase in the GPD of local products supportive of tourism.
3)Number of jobs created through alternative tourism; or through sustainable tourism.
4)CO2 emissions per value added of tourism sector.
5)Water use per value added in tourism sector.

The SCP NAP in the tourism sector has identified the first activity is identification of a list of eco-tourism sites. Based on this identification; it is suggested that data from managers of these sites are provided to the MoTA which include the following information:

1) Number of visitors per site.
2) Number of people working on these sites.
3) Number of local citizens that benefit from the site through selling their products and /or services in association with the sites.
4) Renewable energy use share (yes, no); and quantity generated.
5) Use of water harvesting water use (yes, no), and volume of harvesting unit.
6) Total electricity use. (with and without renewable energy).
7) Total water use (including and excluding alternative resources (such as treated wastewater, harvesting units, desalination…etc).
8) Waste management: no and volume of waste containers cleared per day.
9) Waste management: separation of waste for recycling practices on site.
10) No. of people targeted in campaigns about the site.

Based on the above the following indicators can be reported upon:

1) Increase in the no. of visitors to eco tourism sites.
2) No. of jobs created in eco-tourism.
3) Increase in the no. of destinations of eco tourism sites.
4) Energy use per visitor.
5) Water use per visitor.
6) Waste generated per visitor.
7) Share of renewable energy.
8) Share of alternative water sources.
9) Percentage of sites that have sorting of waste for recycling.
10) Total number of people targeted in marketing for these sites.

Furthermore, the following information could be obtained from the administrative records:

1) No. of initiatives promoting eco tourism (to be obtained from administrative records of MoTA and EQA) with a brief description of each.

2) Size of area designated for eco-tourism. (to be obtained from National spatial plan – after integration of a special layer on eco-tourism).

EQA and MoTA will jointly prepare the form for information to be collected from eco-tourism sites. MoTA will administer the collection of the information from the ecotourism sites. MoTA and EQA will analyze the results, based on which will report on the indicators achievements. Feedback for eco tourism sites on their environmental performance will be provided by MoTA in cooperation with EQA.

5.1.2. Monitoring of overall indicators on SCP in construction and housing sector

The following indicators although important are not currently available. Reporting on these indicators will take place only if they become available from PCBS; on annually bases, EQA will verify with PCBS if these indicators became available:

Solar energy use in sectors other than housing: It is important to note that data are currently not available on the share of solar energy in industry, commerce or public services. However, considering that the National share of renewable energy would be reported upon as part of the SDGs, this might change.

Percentage of establishments utilizing renewable energy: it is important to note that the current economic environmental survey does not integrate questions about renewable energy. It was recommended to integrate the use of renewable energy in establishments as part of the environmental economic survey; this will be studied by PCBS. If this is integrated in the economic environmental survey; then the following indicator would be available: Percentage of establishments (with bigger than 20 employees) utilizing renewable energy sources.

The following indicators are available and could be obtained towards the end of the SCPNAP duration for measurement of success of the plan:

1) The share of solar energy in the housing sector (%) - available from energy balance - PCBS.
2) No. of occupational health and safety incidents among construction workers (No. / 1000 workers).– available at the administrative records of Ministry of Labor.
3) % of construction and demolition waste properly managed. The interventions and activities of the SCP in the construction and housing sector, integrates the development of master plans. It is foreseen; that proper management of such wastes would mean management in accordance with the plans to be developed. This indicator will be measured only at the end of the SCPNAP. Management of construction and demolition waste is conducted under the jurisdiction of municipalities; hence municipalities would have access to such information.
4) % of public procurement of infrastructure that is green. (in terms of value, No., and square meters). Although this indicator is currently unavailable; the SCP NAP has

interventions related to the development of infrastructure procurement specifications that integrates environmental aspects. Every infrastructure procurement conducted based on the technical specifications that has integrated these guidelines / measures will be classified as "Green". According to such definition; the percentage of public procurement conducted according to these specifications could be obtained from the administrative records of the Ministry of Public Works and Housing (MoPWH). Furthermore, As part of SDG 12 -complimentary national indicators; indicator 12.6 – is yet to be developed on sustainable public procurement processes. The development of this indicator as part of the SDGs indicators might support the quantification of sustainable procurement. Although the shape of such indicator is not clear yet; it could be evaluated at later stages for potential of use to measure SCP progress on leadership by example in infrastructure procurement.

5) % of construction establishments that practice recycling / reduction or reuse of their waste – this can be obtained from the union of contractors. The union of contractors is asked to provide this information from its members on annual basis. It is important to note that this will cover only formal sector.
6) No. of buildings certified for energy efficiency. Source of data is Energy Authority.
7) No. of green buildings; administrative data of Engineering associations.
8) No. of green schools: administrative data of Ministry of education.
9) Share of renewable energy in the educational establishments (source: administrative data of Ministry of Education).
10) Percentage of publicly owned buildings that are energy efficient – administrative data of energy authority. (the data might be available as number, rather than percentage). Report based on data availability.
11) Quantity (percentage) of organic municipal waste valorized. Administrative data of Joint service councils for waste management at the governorate level.
12) % of physical plans undergone Strategic Environmental Assessment (administrative data of MoLG and EQA).

In order to collect the information on indicators above; EQA will contact the stakeholder that have the source of information and request the information from them. Meetings would be required with relevant stakeholder to coordinate obtaining the relevant information. All information that will be obtained from JSCs and from municipalities will have to be coordinated with MoLG.

5.1.3. Monitoring of overall indicators on SCP in agriculture and food production and consumption sector

It is important to note that many of the indicators relevant to SCP in agricultural sector are neither currently available at PCBS nor available as administrative records within the relevant stakeholders; hence a requirement to design, develop and implement an agriculture environmental survey is crucial. The SCP NAP has provided an initial estimate of 600,000 USD

for such survey, however the budget can only be fine tuned after the design of the survey is finalized, including its piloting.

The environmental agricultural survey should cover the following issues:

1) Share of renewable energy in agricultural sector.
2) % of land that is farmed without the addition of chemicals.
3) Water use per crop production.
4) Nutrients use per crop produced.
5) Pesticides use per crop produced.
6) % of water in agricultural sector from alternative water sources.
7) % of farmers receiving extension services on sustainable agricultural practices.
8) Nitrogen use efficiency in food systems SDG indicator.
9) Crop yield gap (actual yield as % of attainable yield) SDG indicator.
10) Crop water productivity (tons of harvested product per unit irrigation water)] - to be developed SDG indicator.
11) Livestock yield gap (actual yield as % of attainable yield).
12) Phosphorus use efficiency in food systems] to be developed.
13) [Access to drying, storage and processing facilities] –to be developed.
14) Indicator on irrigation access gap] to be developed.
15) Farmers with nationally appropriate crop insurance (%)] –to be developed.
16) Food losses in the value chain after harvest. / SDG indicator: Global Food Loss Indicator [or other indicator to be developed to track the share of food lost or wasted in the value chain after harvest].
17) % of holdings that utilizes good practices in waste management:
    a. Proper management of manure.
    b. Proper management of chemicals containers.
    c. Proper management of hazardous chemicals produced.
18) % of holdings that utilizes good and safe practices in chemicals handling.
19) Quantities of hazardous waste generated.

Indicators relevant to health aspects of nutrition other than stunning and wasting, and nutritional choices are not available at PCBS, however some data are available at MoH, or will be available as part of the SDGs indicators development. MoH in cooperation with UNICEF has conducted the first cross sectional study on nutrition in 2013. The SDGs has included complementary national indicators, as soon as these indicators become available; the information will be used to report on food consumption. The following SDGs complementary national indicators are relevant:

1) Percentage of population with shortfalls of: iron, zinc, iodine, vitamin A, folate, vitamin B12, [and vitamin D].
2) Percent of population overweight and obese, including children under 5 Age.

3) Prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit and vegetables per day.
4) Standardized mean population intake of salt (sodium chloride) per day in grams in persons aged 18+ years.
5) Percentage change in per capita [red] meat consumption relative to a 2015 baseline.

The following data are collected through existing surveys and censuses conducted by PCBS:

1)% of farms mixed; % of animal farms that are mixed.
2)% of irrigated area that utilize drip irrigation.
3)Market share of locally produced food.
4)No. of animal agricultural holdings that do not have access to energy.
5)No. of agricultural cooperatives.
6)% of agricultural holdings receiving extension services.
7)%of population with nutritional problems; specifically: stunning and wasting.
8)Increase in irrigated land; total size of new irrigated land.

The following indicators could be obtained through administrative data of various stakeholders:

1) % of agricultural holdings with certification (land /or no of holdings) - administrative records of MoA.
2)% of food manufacturing industries that have certification such as ISO14001, or GPM – administrative records of PFI.
3)Indicators on waste management in agricultural sector; the data is partially available at MoA and EQA, however with the implementation of the NAPSCP, including the guidelines on management of agricultural wastes; the data will be become more available.
    a. For veterinary waste: % treated according to the medical waste bylaw. – the data to be obtained from MoA ; according to the medical waste bylaw; veterinary sources should records their management of waste.
    b. For chemicals waste: total collected, and managed; % of generated. Although there is no estimation yet of the quantity generated; however the MoA have tracking on all hazardous waste collected, stored. EQA have records on all hazardous waste transported to designated facilities in Israel according to Basel Convention. With the development and implementation of the guidelines on management of agricultural hazardous waste; estimation of generated quantities would be more available.

In order to gather the overall indicators on the SCPNAP; EQA will obtain existing data from PCBS, as well it will further follow up on any new relevant indicators being published from the lists above, particularly those related to SDGs. EQA will conduct an annual meeting with MoH to obtain available data on nutrition and health aspects discussed above. Furthermore, EQA will conduct bi annual meetings with MoA to ensure availability of data on the agricultural sector. It is important that EQA, in cooperation with MoA and PCBS work out on further development

and specification of the agricultural environmental survey and securing funding for its implementation every 4 to 5 years.

5.2. Monitoring indicators at the interventions level

For each intervention to be conducted a responsible stakeholder was assigned; this stakeholder is responsible to report on the achievements of this intervention through documentation of the relevant indicators. EQA will conduct twice a year a meeting with the responsible stakeholders to identify progress conducted on the level of the intervention.

Annex 1 – List of consulted stakeholders

Governmental and semi governmental organizations participated in SCP NAP

Organization	Name
Ministry of Agriculture (MoA)	Adnan Nassar
MoA	Ahlam Odeh
MoA	Ammar Salhat
MoA	Eman Dagnsh
MoA	Fathi Albatah
MoA	Hanadi Al shobake
MoA	Hassan Alashqar
MoA	Hazem Yassen
MoA	Ibrahim Masha'ah
MoA	Ibtsam Abu Al Hija
MoA	Imad Ganameh
MoA	Issam Nofal
MoA	Laila Zead Eid
MoA	Mahmoud Barham
MoA	Mahmoud Fatafteh
MoA	Mahmoud Sbarna
MoA	Maram Sawalhah
MoA	Mustafa Barakat
MoA	Nadiah Al Ashab
MoA	Nehad Al Amleeh
MoA	Raed A'alari
MoA	Rana Karmi
MoA	Riziq Ghayadh
MoA	Thaer Rabi
MoA	Zafir Al-Hamshari
Ministry of Women's Affairs	Yousef Odeh
Ministry of Culture	Mahmoud Daraghmeh
Ministry of Finance	Feda'a msha'l
Ministry of Health	Lina Bahar
Ministry of Labor	Lena Abu Shehab
Ministry of local Government	Suliman Abu Mfrah
Ministry of National Economy (MNE)	Hisham Khuffash
MNE	Issa Safi
MNE	Khader Daraghma
MNE	Mohammed Samara
MNE	Saber Alamleh
MNE	Zeiad Fadhel
MNE	Shefa'a Abu Sa'adeh
MNE	Teser almasree
Ministry of Public Works and Housing (MoPWH)	Abd Al-Kareem Zean Al-Deen
MoPWH	Mustafa Safareni
Ministry of Tourism and Antiquities (MoTA)	A'wni Mohamed Shohwan
MoTA	Hassan Ishteeh
MoTA	Jehad Mustafa
MoTA	Mohamad Jaradat
MoTA	Sayel Aldeek
Palestinian Water Authority (PWA)	Ali Ramadhan
PWA	Kamal Mohamad Issa
PWA	Yousef Awayes
Palestinian Energy and Natural Resources Authority (PENRA)	Asmaa' Yaseen
PENRA	Ayman Ismail
PENRA	Falah Adumiri
PENRA	Falah Demery
PENRA	Nidal Abu AlRub
Ministry of Education and higher Education (MoE)	Fakhri Safadi
MoE	Maa'moun Jaber
Palestine Standards Institution (PSI)	Adeeb Alqumeri
PSI	Ahmad Ganem
PSI	Ahmad Omarah
PSI	Belal Aburrob
PSI	Hana'a Hanoun
PSI	Karam Qabaja
PSI	Saher Barguthy
PSI	Shireen Hamada
PSI	Wa'ad AL-Shwaky
Palestinian Central Bureau of Statistics (PCBS)	Amneh Al -Natsheh
PCBS	Aysar Toumeh
PCBS	Inas Al Rifai
PCBS	Maherh Qundah
PCBS	Mahmoud Souf
PCBS	Mohammad Shaheeen
PCBS	Mustafa Khawaja
PCBS	Rania Abu

Organization	Name
	Ghaboush
PCBS	Ruba Al Qubaj
PCBS	Safia Ibrahim
PCBS	Shadia Abu Al Zein
Municipal Development and Lending Fund	Hazem Kawasmi
Palestinian Electricity Regulatory Council	Qais Samara

Local government organizations participated in the SCP NAP

Organization	Name
Al Bireh Municipality	Atallah Al-Tamimi
Joint Service Council for Solid Waste Management (JSC-SWM) – Hebron governorate	Abd alhai Arafih
Higher JSC-SWM in Hebron and Bethlehem Governorates	Ahmad Sokar
JSC-SWM in Jenin Governorate	Foad Bla'awi
JSC-SWM in Jenin Governorate	Mohammad Al Saadi
JSC-SWM in Ramallah and Al Bireh Govenrorate	Husain Abu Oun
JSC-SWM in Ramallah and Al Bireh Governorate	Saed Hdheri
Nablus Municipality	Tamam Khderi

Media participated in the SCP NAP

Organization	Name
Palestine T.V.	Ahmed Manasra
Palestine T.V.	Haneen Jabareen

Universities participated in the SCP NAP

Organization	Name
Bethlehem University	Mouhamad Huseen Najajrah
Bethlehem University	Mazin Qumsieh
Birzeit University	Afif Aqel
Birzeit University	Baher Dikeidek
Birzeit University	Rashed saed
Palestinian Academy for Science and Technology	Ayman Haj Daoud
Palestine Polytechnic university	Ayman Sultan

Private Sector organizations participated in the SCP NAP

Organization	Name
Bank of Palestine	Hatem Mustafa
Bank of Palestine	Shaker Wajeh AL-Safadi
Free lancer	Alaa Shaat
Free lancer	Said Jalalah
Free lancer/ Agricultural Expert	Kasim Abdo
Palestinian Federation of Industries	Fuad Akra
Sharakat	Khalid Hardan
Union of Stone and Marble Industry	Malek Jaber

NGOs, CBOS, Unions and cooperatives participated in the SCP NAP

Organization	Name
Bawadi	Suliman Alkorshan
Center for Cultural Heritage Preservation (CCHP)	Hasan Altiti

Organization	Name
CCHP	Majed Shwahneh
CCHP	Tamara Hodali
Center for Environment-Palestine (CEP)	Ahlam Mahmoud
CEP	Ghdeer qawariq
CEP	Rania Joulani
CEP	Suheir Ahmad
CEP	Wijdan Alsharif
CEP	Wisam Al Disi
Global Communities	Abd AlHakem Juhari
Land Research Center	Waleed Hejazi
Palestine Higher Green Building Council	Alaa Flaifel
Palestinian Agricultural Relief Committees (PARC)	Ashraf Taha
PARC	Muqbel Abu Jeish
Palestinian Housing Council (PHC)	Omar Al Khofsh
PHC	Zuhair Ali
Palestinian Hydrology Group	Rasha Al-Disi
RIWAQ	Michel Salameh
RIWAQ	Shatha Safi
Rural Women Development Society	Dalal Hussien
The Applied Research Institute Jerusalem – ARIJ	Jane Hilal
The Environmental Education Center	Joun Saleeba
The Palestinian Environmental NGO's Network	Abeer Al-Butmeh
Union Cooperatives Association for Saving and Credit	Randa Abd rabh
Union of Working Agricultural Committees	Fadi Musa
Water and Environment Development Organization	Mahmoud Drea'at
AQA	Husam Alhaj Mouhamad
Engineers Association	Lenda Ameen AL-Kateeb
HAMBERS	Nazeh Mrdawi
Palestinian Agricultural Cooperatives Union	Mohamed Omar

United Nations Organizations participated in the SCP NAP

Organization	Name
UNDP	Husam Tbeel
UNDP	Youns Sbeah
UNEP	Luc Reuter
UNEP	Henrik Jacobsen

EQA – List of Names participated in SCP NAP	
Adalah Atteereh / Chair of EQA	
Abd Alazez Rayyan	Jameel Mtour
Adnan Jodeh	Kahramaneh Jarrar
Ahmad Abu thaher	Leen Songq
Ala'a Kana'an	Ma'moon A'artani
Amani Abu Baker	Murad Al-Madani
Ameen Abu Sheikha	Nidaal Katbeh
Amjad Ibrahim	Nidal Abu Seifein
Anwar Maala	Raed Abu Baker
Ayman Abu Dhaher	Sa'ed Abu Tarboush
Bahjat Jabareen	Saeda Sha'ebat
Bashe'r Atawenh	Samer Qasem
Dalia Amleh	Sheraz Saade
Doa'a Areadi	Shireen Zeidan
Hadia Abu Raea	Taleb Ihmied
Hanan Hijawi	Thabet Yousef
Hashem Salah	Thekra Mustfa
Ibrahim Al-Abseh	Yasser Abu Shanab
Imad AL-Baba	Zaghloul Samhan
Isam Qasm	Reem Musleh / EQA Consultant SCP NAP
Issa Mousa	

Organization	Name
Abu Sharar the recycling company	Ahmad Abu Sharar
Afanin	Ala'aaldeen Fadhel
Al itikal Company	FaedahYamak
Al itikal Company	Ina'amYamak
Al itikal Company	SameraYamak
Al Nabah council	Thiab Mashaleh
Alastguar Team	Worood Sharabati
Alkelani Translation	AbdAlrhman Alkelani
Alnabali&Alfares Company	Khaled Alfares
Al-Quds Educational T.V	Firas Mohamd
Al-Quds Educational T.V	Quteba Hamdan
AL-QUDS University	Ahmad Khattab
AL-QUDS University	Areej Alshareef
AL-QUDS University	Faten Shakarneh
AL-QUDS University	Raed Ma'ali
ANERA	Amal Balan
ANERA	Meral Nabeel
An-Najah National University	Mohamed Dqa
Arab Agronomists Association	OmimahShaltaf
Bajjora Company	Ahmad Abu Alrub
Bajjora Company	Rand Bdran
Bank of Palestine	Shaker AL-Safadi
Beitunia Municipality	Ibrahim Wahdan
Birzeit University	Ahmad Abu Haneh
Birzeit University	Halema Abu Hetha
Birzeit University	Marwan Ghaneem
CEP	Suher Ahmad
CEP	Wijdan Alshareef
CEWAS	Heba Abu alfelat
CEWAS	Lillian Volat
Chamber of Commerce	Rezaq Ahmad

Organization	Name
&Industry Ramallah &Al Bireh Gov.	
COC	Mahmoud Hamadneh
Committee wall Ni'lin resistance	Abdallah Abu Rahmah
Committee wall Ni'lin resistance	Abdallah Hamdan
Committee wall Ni'lin resistance	Mohamad Amerah
Cooperative Society Dora	Mhmoud Dodeen
Cooperative Society Dora	Sadeqa Knbo
Cooperative Society Thnabeh	Basem Barakat
Cooperative Society Thnabeh	Taleb Abu Hani
Cooperative SocietyKoferLaqef	Dalal Asaf
Eco Teck Recycling	Anton Hallak
EFA	Areen Dhafer
Engineers Association - Jerusalem Center	Majdi Alsaleh
Environmental Activist	Jalil Jarar
Environmental Media	Ala'aHantash
Environmental Media	Rania Jabr
EQA	Abdal Almna'em Shehab
EQA	AbdAlazez Rayyan
EQA	Adnan Jodeh
EQA	Ala'a Kana'an
EQA	Amani Abu Baker
EQA	Ameen Abu Sheikha
EQA	Amjad Ibrahim
EQA	Ayman Abu Dhaher
EQA	Bahjat Jabareen
EQA	Basheer Zaheer
EQA	Bashe'r Atawenh
EQA	Dalia Amleh

Organization	Name
EQA	Doa'a Abdallah
EQA	Hadeel Khamais
EQA	Hadia Abu Raea
EQA	Halemah Ghanam
EQA	Hana'a Qdeah
EQA	Hanan Hegawei
EQA	HananHijawi
EQA	Haneen Alakhras
EQA	Husien Mujahed
EQA	Ibrahim Al-Abseh
EQA	Ibrahim Alqouqa
EQA	Iftitah Amous
EQA	Imad AL-Baba
EQA	Iman Amodi
EQA	Isam Qasm
EQA	Issa Mousa
EQA	Jameel Mtour
EQA	Kahramaneh Jarrar
EQA	Khaled Salem
EQA	Lama Jarrad
EQA	Lamees Alhelali
EQA	MahaYaghmour
EQA	May Rahhal
EQA	Murad Al-Madani
EQA	Mustafa Albarghthi
EQA	Na'meh Kana'an
EQA	Nidal Abu Seifein
EQA	Nuha Barakat
EQA	Ola Hamdan
EQA	Osamah Nazzal
EQA	Raed Abu Baker
EQA	Rania Albrghuthii
EQA	ReemMusleh / EQA Consultant SCP NAP
EQA	Ruba Arman
EQA	Sa'ed Abu Tarboush
EQA	SaedaSha'ebat
EQA	Sereen Qunob
EQA	Shareef Albatah

Organization	Name
EQA	Sheraz Saade
EQA	Shireen Zeidan
EQA	TalebIhmied
EQA	ThabetYousef
EQA	ThekraMustfa
EQA	WisalRaslan
EQA	Yasser Abu Shanab
EQA	Zaghloul Samhan
EU	Joao Anselmo
Free lancer	Samia Alwazeer
Freelancer/ Agricultural Expert	Kasim Abdo
Freelancer/ Agricultural Expert	Saad Dagher
General Consulting Company	Ali Safi
General Personnel Council	Khulod Hanon
Global Communities	AbdAlHakem Juhari
Green Life	Maha Abdalrhman
Hawash-Stone Company	Anan Hawash
Hawash-Stone Company	Bilal Shlhob
Hawash-Stone Company	Yousef Hjazi
Hebron University	MohamadAlmasri
Hebron University	MohamadManasrah
Higher JSC-SWM for Bethlehem and Hebron Governorates	Ahmad Sokar
Higher JSC-SWM for Bethlehem and Hebron Governorates	Majed Alsareea'
Higher JSC-SWM for Bethlehem and Hebron Governorates-	Yasser Dweik
ISS Company	Jad Husien
ISS Company	Yasmeen Faymi
JSC-SWM for Jericho and Rfit	AbdAljabar Abu Halawa

Organization	Name
Valley	
JSC-SWM for Ramallah and Al Bireh Governorate	Ola Al a'bodi
JSC-SWM for Ramallah and Al Bireh Governorate	Saed Hdheri
MasarIbramin	Zaid Izhadi
MediaiTech Solutions Company	Abdallah Melhem
Ministry of Health	Mahoud Othman
Ministry of Labor	Iham Nsaur
Ministry of Labor	Lena Abu Shehab
Ministry of local Government	Isma'eelSaleh
Ministry of local Government	NjlhWshah
Ministry of Transportation	Iman Taha
Ministry of Transportation	Naser Abu Sharbak
Ministry of Transportation	Thafer Jabr
MNE	Maysa'aJabr
MNE	Wala'a Ryan
MoA	Adnan Nassar
MoA	Ahlam Odeh
MoA	Ahmad Alfares
MoA	DuhaAbdeen
MoA	Farah Sawaftah
MoA	Hana Hjaji
MoA	Hanadi Alshowbki
MoA	Ibtsam Abu Al Hija
MoA	Imad Ganameh
MoA	ImadAltawel
MoA	ImanYasser
MoA	LailaZeiad
MoA	Moua'merSalhat
MoA	MunadiAlshwike
MoA	Safa'a Bsees
MoA	Samah Jodeh

Organization	Name
MoA	Thaearabuadei
MoA	Thaer Rabi
MoE	Amjad Ihmedat
MoE	Basem Iriqat
MoE	BasmaSa'adh
MoE	Dhmenh Shoman
MoE	Moua'amr Ishtewi
MoE	Rawan Aqel
MoE	Rwedah Shaker
MoE	Suheb Zahran
MoE	Yasser Abu Baker
MoPWH	Abd Al-Kareem Zean Al-Deen
MoPWH	Mohamd Hamarshah
MoPWH	Mustafa Safareni
MoTA	Ahmad Da'as
MoTA	Ahmad Na'eerat
MoTA	A'wni Mohamed Shohwan
MoTA	Nda'a Alaesh
Nablus Municipality	Raneah Taha
Nablus Municipality	RaziYa'aesh
National Beverages Company (NBC)	Ala'a Esawi
Palestine Higher Green Building Council	Alaa Flaifel
Palestine T.V.	Hadeel Shawamreh
Palestine Technical University-Kadoori (PTUK)	Basel Al ntsheh
Palestine Wildlife society	Ibrahim Odeh
Palestine Wildlife society	Imad Alatrash
Palestinian Academy for Science ad Technology	Ayman Haj Daoud
Palestinian Cabinet	Bader Abu Zahra
Palestinian	Lutfi Abu Naser

Organization	Name
Customs	
Palestinian Food Industries Union (PFIU)	Nmer A'twani
Palestinian Housing Council (PHC)	Omar Al Khofsh
PARC	Muqbel Abu Jeish
PCBS	Mahmoud Souf
PCBS	Safia Ibrahim
PENGON	Toqa Nazzal
PENRA	Falah Demery
PFI	Odeh Shehadeh
PHC	Zuhair Ali
PHG	Afaf Yaseen
PHG	Manar Nazzal
PHG	Samhan Samhan
Plant nursery	Iman Amerah
Police	Mdhat Qalalwh
Police	Sultan Anwar
Political National Guidance Commission	Amani Abdo
Political National Guidance Commission	Bassam AlAqtash
Political National Guidance Commission	Heba Abu Ymen
PPU	Ahmad BasemKhadur
PPU	Ala'a Kamal
PPU	Amjad Hgagrah
PPU	Anwar Abu Halawah
PPU	Areen Amer naser Aldeen
PPU	HaeaJa'abrei
PPU	Haneen Alshukhi
PPU	Heba Slemeah
PPU	Jood Salah
PPU	Mari Da'aeq
PPU	May A'anati

Organization	Name
PPU	Mohmmad Nawaga
PPU	Na'eema A'wawi
PPU	NadiahIa'afefan
PPU	Nareman Zahdah
PPU	Ola Alsa'a
PPU	Omamah Masri
PPU	Raghdah Manasrah
PPU	RehamMajed
PPU	Sajedah Mujahed
PPU	Shefa'aAbdalnabi
PPU	Tasneem Ashahab
PPU	Tasneem Salaemah
PPU	Weam Abu shekhah
Presidential Office	Abdallah Alnjar
Presidential Office	Basemah Taha
Presidential Office	Ghada Alsife
PSI	AbdlatefAlshiekh
PSI	HaederHajh
PSI	Hana'aHanoun
PSI	RaedAlhelo
PSI	RaneaAbushi
PSI	Shireen Hamada
PTUK	Asen Hadad
PTUK	Asma'a ZaghloolZ
PTUK	Blal Tahssen
PTUK	Braa'hJawabreh
PTUK	Bsmah Bshnaq
PTUK	Ibaa'a Brhosh
PTUK	Istbraq Na'eerat
PTUK	KadhemBuzeeh
PTUK	Mees Namorah
PTUK	Mohamad Ahmad
PTUK	Mohamad Alardah
PTUK	Mohamad Mlhem
PTUK	Mohamad Shahateet
PTUK	Nawaf Abu Halab
PTUK	Rawan Rushdi
PTUK	Sonds Bsharat

Organization	Name
PTUK	Wafa'aMsa'ad
PTUK	Zenab Abu Omar
PTUK	Zhra'a Zyod
PWA	Kamal MohamadIssa
Rack Tech Company	Omar Manasrah
Revivers of the Land Palestine	Sondos Suliman
Revivers of the Land Palestine	Sumera'aAlqadhi
RIWAQ	Renad Shqerat
Royal Company	Imad Alrjob
Royal Company	Nael Sa'adh
Royal Company	Samer Khamaesh
Sahari Palestine	Jameel Akasea
SanabelCooprative Nuralcervice Jericho	Zenab Hassan
Siraj Center	Suher Ghanem
Society gave us a childhood	Doa'a Abu Okal
State Audit &Administrative Control Bureau	Shhadeh Alawneh
Sunflower Association	Fadwa Khader
Sunflower Association	Heba Abulaila
Sunflower Association	Heea AbuLaila
The Environmental Education Center	Simon Awadh
The Palestinian Environmental NGO's Network (PENGON)	Abeer Al-Butmeh
The Palestinian Museum	Mouhamad Huseen Najajrah
The Palestinian Museum	Renad Jeres
UNDP	Fawzi Abdo
UNEP	Luc Reuter
Union of Stone and Marble Industry	Hatem Yamak
Union of Stone and Marble Industry	Lubabah Hatem Abdeen

Organization	Name
WEDO	AbdAlkareem Shreteh
WEDO	Mahmoud Drea'at
WEDO	Nor Samrh
WEDO	Wa'aedOdeh
World Vision	Ali Abdo

The Sustainable Consumption and Production National Action Plan (SCP-NAP) for Palestine provides a road map for mainstreaming SCP in different developmental sectors. Three sectors are highlighted in the SCP-NAP:

- Tourism: Eco-tourism was highlighted in this sector as an alternative tourism to be further developed, in order to ensure protection and rehabilitation of natural resources, respecting spatial, ecological, and socio-cultural carrying capacities of the destination and reducing environmental impacts of tourism.
- Housing and Construction: The promotion of innovation and knowledge and the integration of practices, which enhance resources efficiency and contribute to natural and human protection, throughout entire planning and construction process and life cycle of building is the strategic objective of this sector.
- Agriculture and Food: This sector was studied in more details than the two other sectors. The strategic objective for this sector was to develop, promote and implement sustainable agriculture practices, food production and consumption in Palestine; in a manner that increases food security and sovereignty and ensures the right of Palestinian people to healthy nutrition and protection of natural resources.

A participatory approach was adopted in the development of this document, hence all related stakeholders where consulted either in workshops or face to face meeting or by other way of contact. The way how the stakeholders reacted to the process showed their interest in adopting and mainstreaming the concept in their strategies and plans.

This SCP-NAP is one important step in Palestine toward achieving Sustainable Development and implementing the agenda 2030 of the Sustainable Development Goals.

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