



WEFE NEXUS ASSESSMENT FOR LEBANON: A SOLUTION-ORIENTED PROCESS

Raji Maasri and Salam Nassar

MORES s.a.r.l.

2023



Mediterranean
Action Plan
Barcelona
Convention

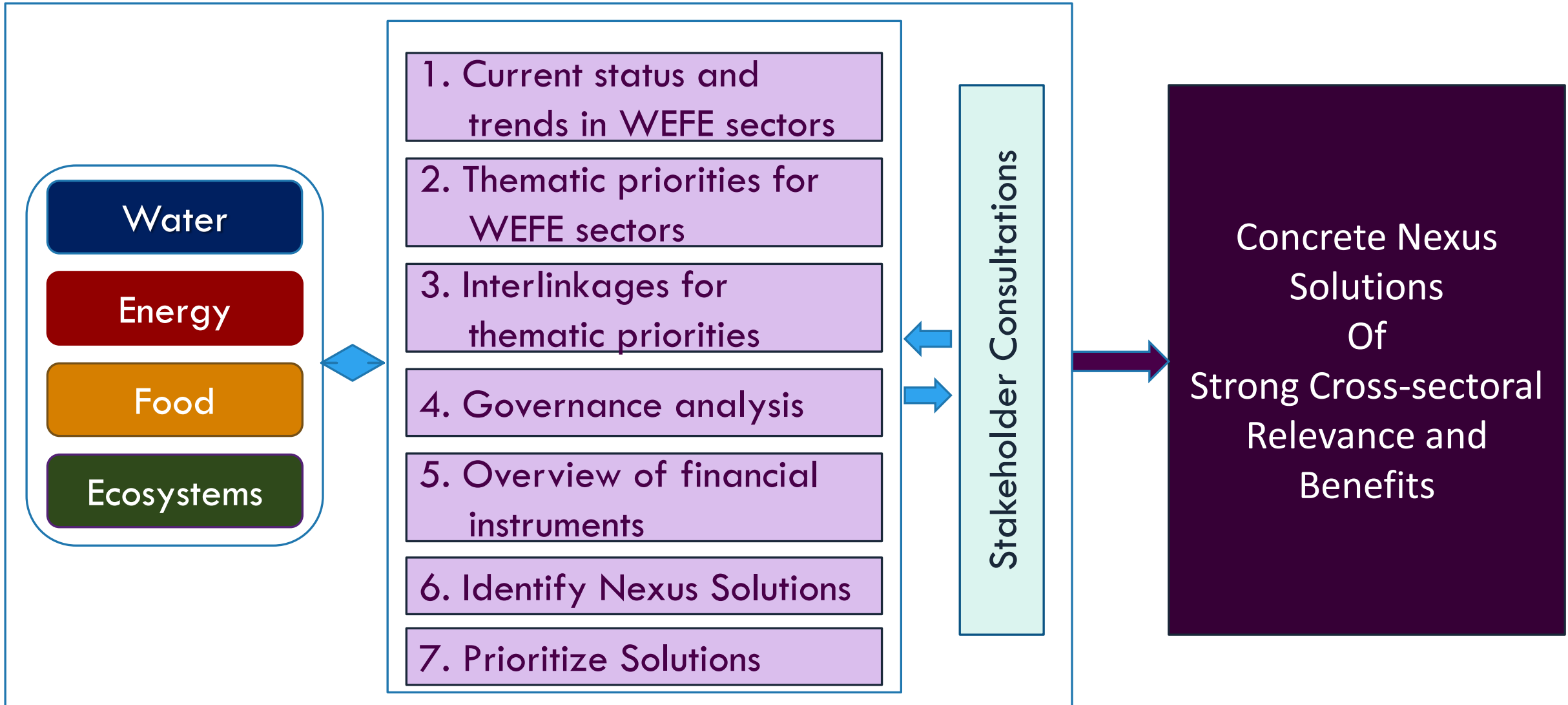




WEFE Assessment in Lebanon

Methodology

Methodology WEFE Nexus Assessment





WEFE Assessment in Lebanon

Current Situation

Overview of Current Status of WEFE Sectors

- Lebanon is far from achieving water, energy and food securities and ecosystem protection
- Ongoing crises (refugees, financial and economic, fuel, political, etc.)
 - heavily affected sectoral performance
 - highlighted weaknesses and vulnerabilities within the sectors
 - reflected interdependencies between the sectors
 - are leading to vast changes in various aspects

Overview of Current Status of WEFE Sectors

■ Water Sector:

- Shortage in supply by public facilities
- Inefficiency in water supply (old infrastructure, high cost of operation and maintenance, losses in network)
- Lack of wastewater collection and treatment)
- Lack of control over GW pumping due to the widespread of wells (legal and illegal)
- Multitude of pollution sources and lack of mitigation or remediation
- Incapacity of public institutions to enforce laws and regulations

Overview of Current Status of WEFE Sectors

■ Energy Sector:

- Chronic electricity crisis and shortage in supply
- Generation capacity is insufficient and has low efficiency
- Severe financial deficits
- Reliance on diesel generators to cover gaps in supply
- Increase in installed renewable energy technologies (private)
- Transportation sector is the main consumer of imported gasoline (poor public transport)

Overview of Current Status of WEFE Sectors

■ Food Sector:

- High reliance on imports
- Increased food insecurity due to crises (financial, energy, Beirut port explosion, etc.)
- High cost of production
- High farmer vulnerability
- High cost of cold storage for produce
- Loss of soil fertility

Overview of Current Status of WEFE Sectors

■ Ecosystems Sector:

- Crises have increased stresses on natural resources and ecosystems
- Ecosystem degradation (urbanization, pollution, quarrying)
- Over-exploitation of resources, uncontrolled hunting and fishing
- Invasive species and insect infestation
- Uncontrolled recreational activities

Issues Related to Data and Information on Sectoral Status

- Most WEFE sectoral data are based on estimations
- Information is mostly qualitative
- Gaps in data:
 - related to status, availability and quality of natural resources
 - needs and usage/consumption of resources
 - state and performance of infrastructures and facilities
 - production and capacities within the sectors, human resources and financial data
- Lack of suitable and efficient data management and exchange protocols and mechanisms
- Lack of technical and financial resources to permit systematic and periodic data collection

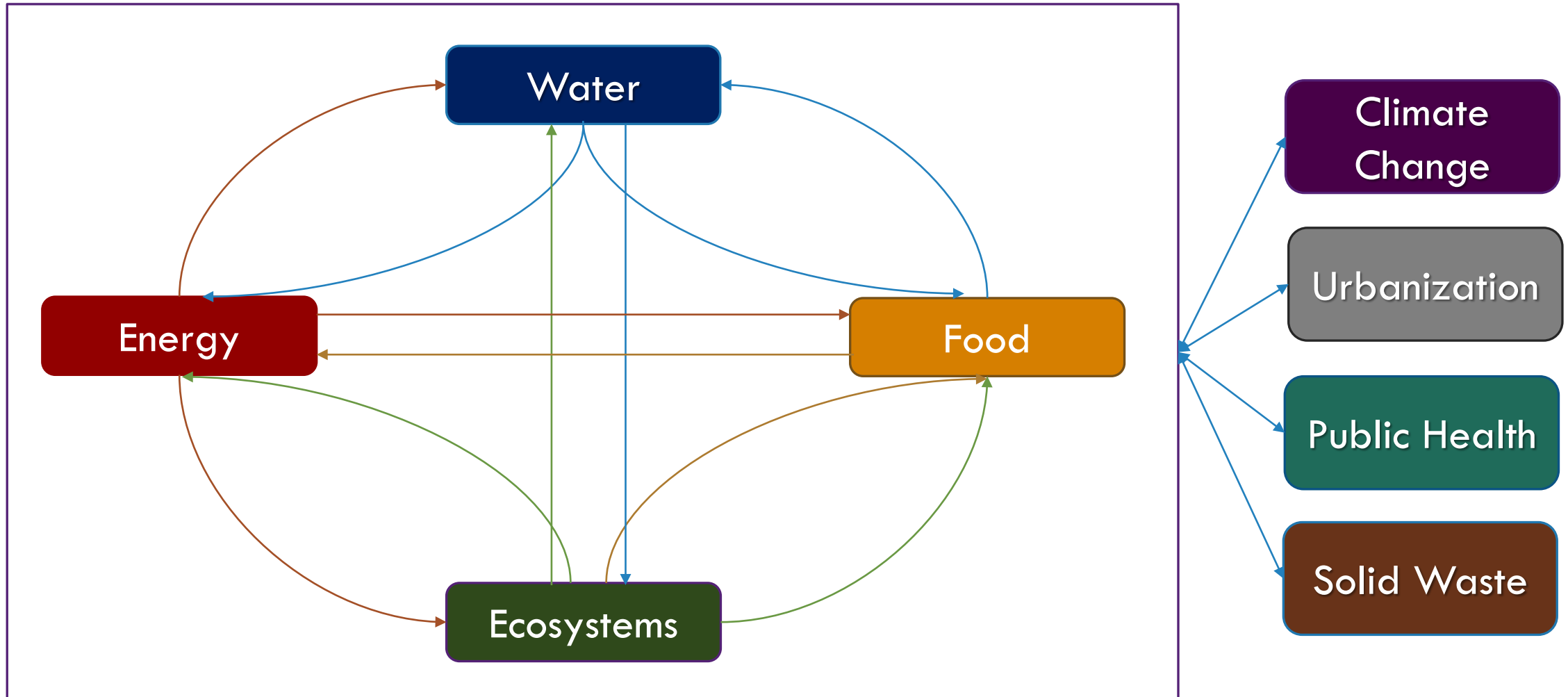


WEFE Assessment in Lebanon

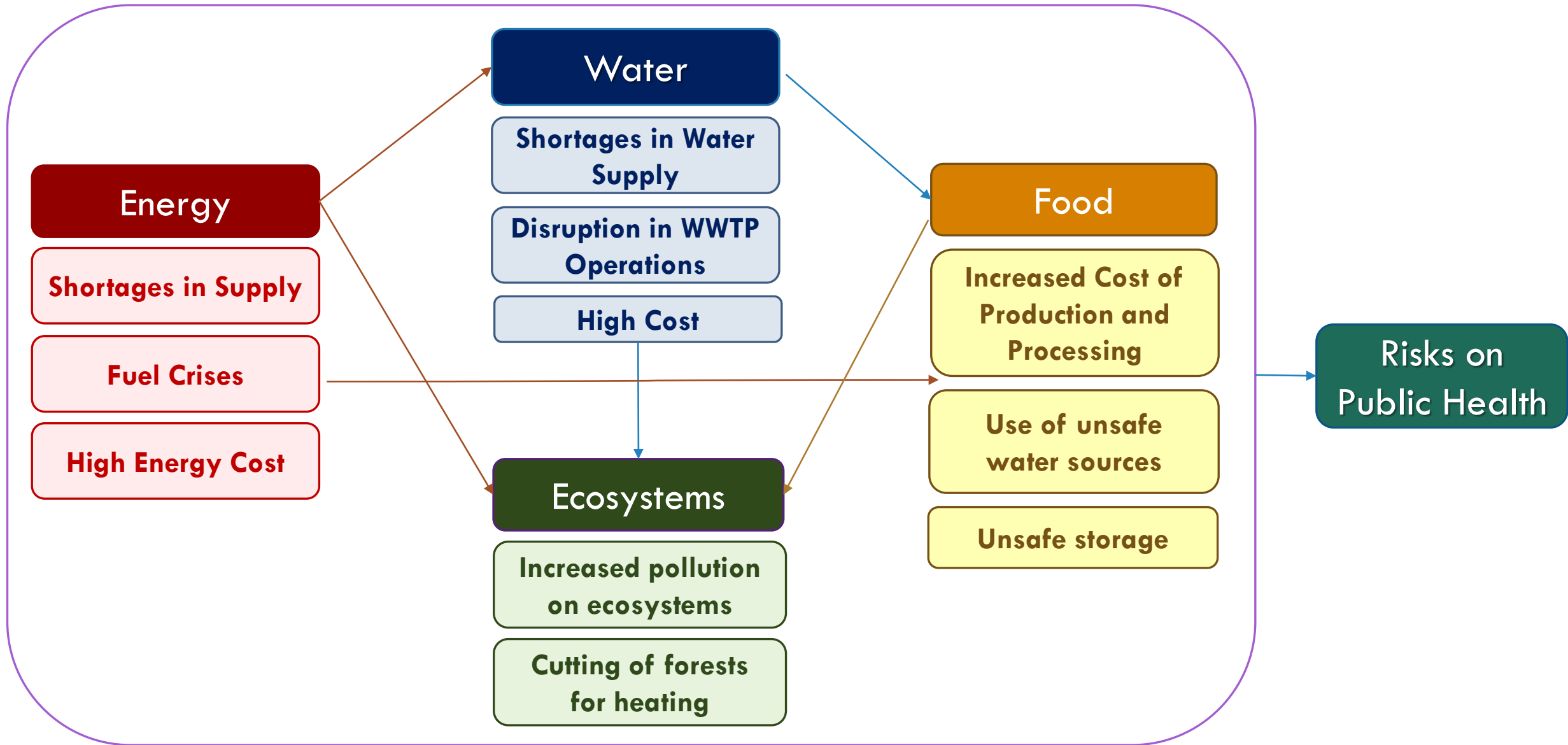
Interlinkages

WEFE Sectors Interlinkages

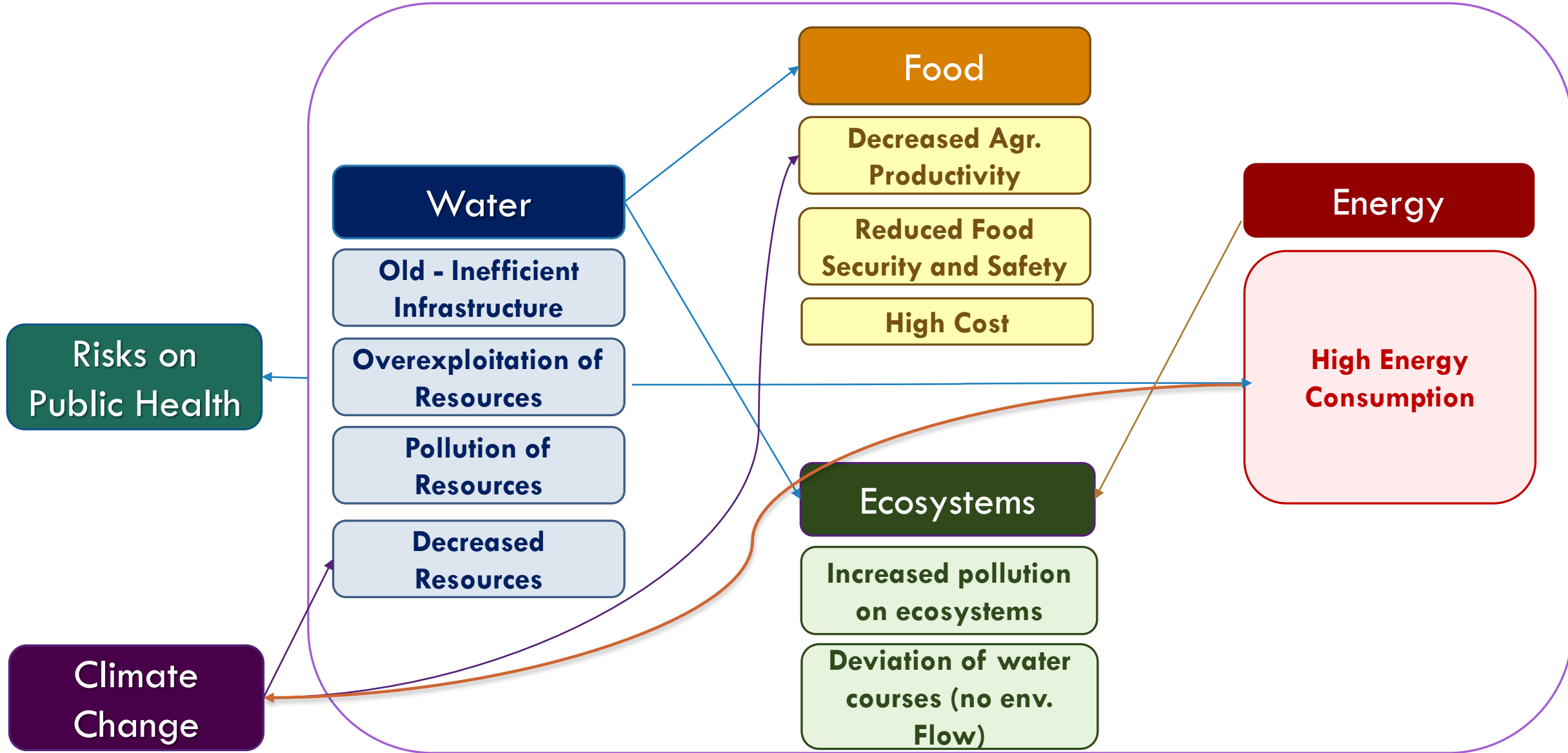
WEFE Nexus



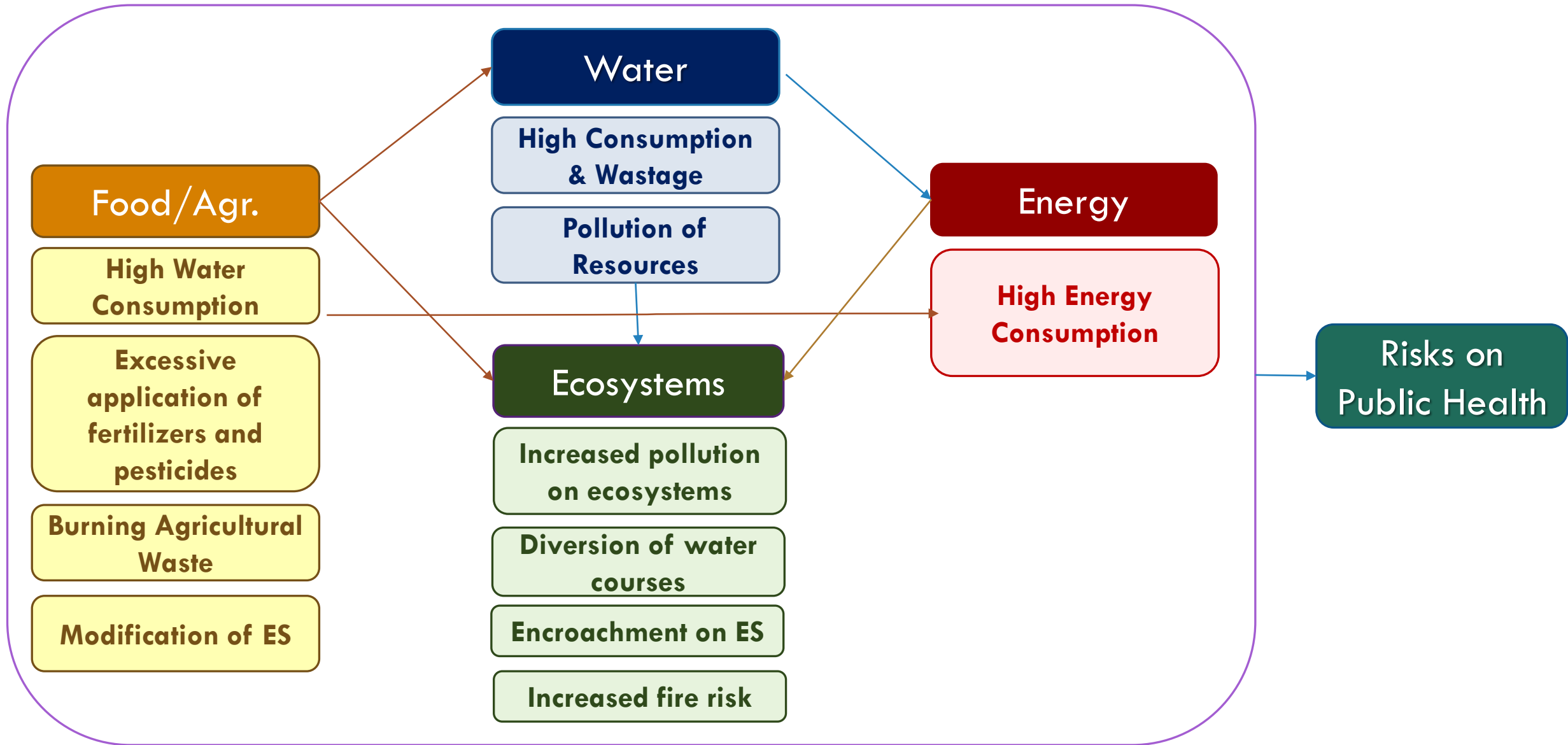
High Priority Interlinkages in Lebanon



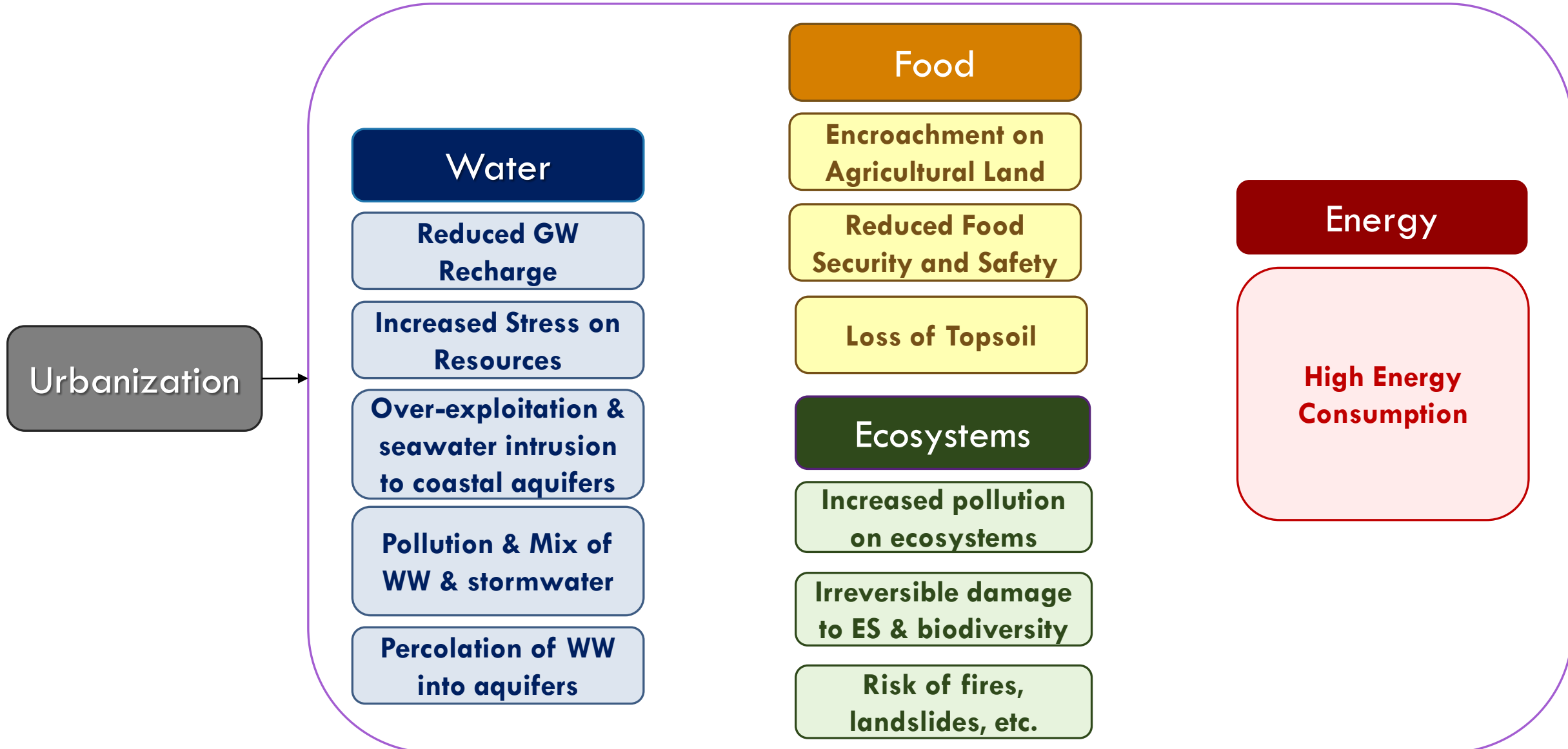
High Priority Interlinkages in Lebanon



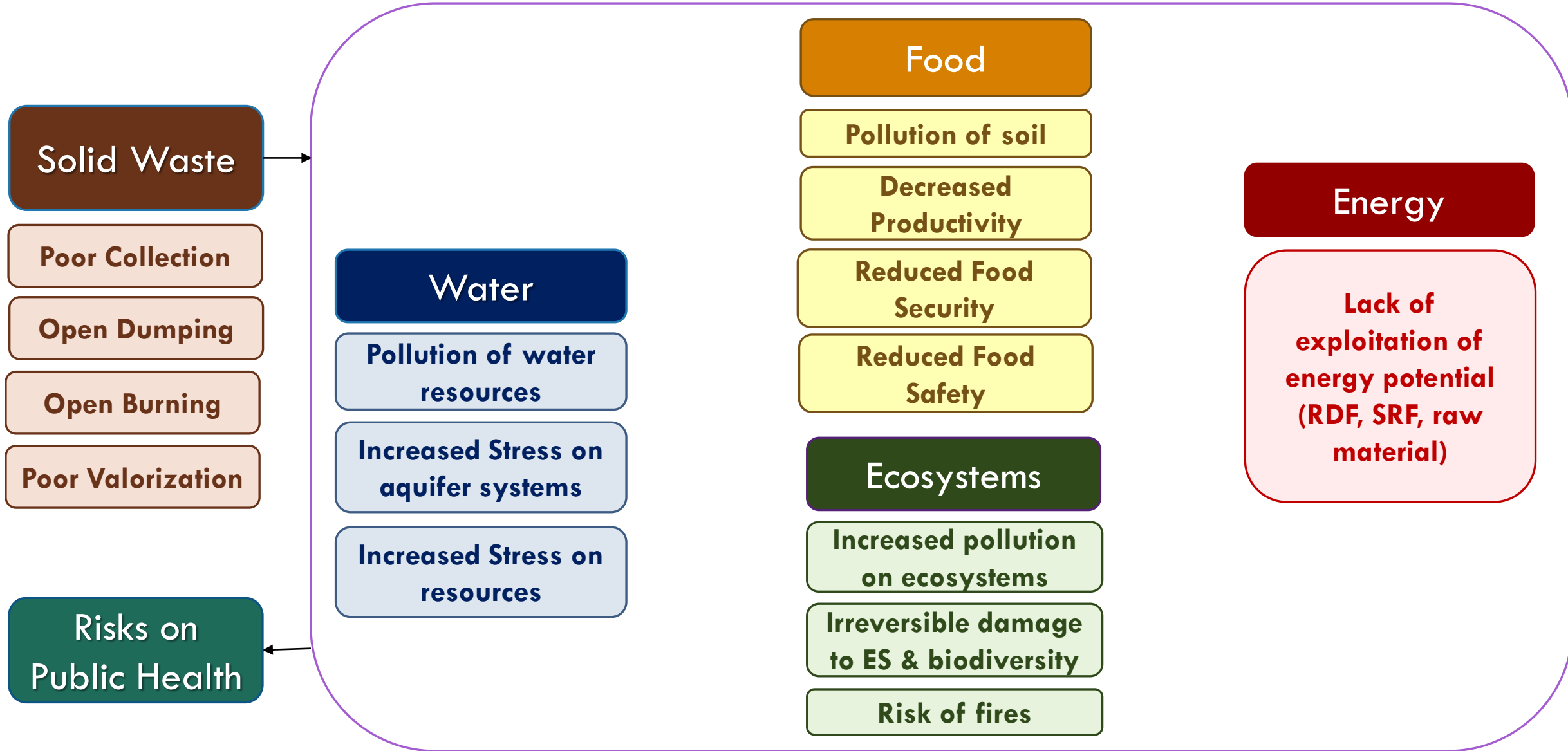
High Priority Interlinkages in Lebanon



High Priority Interlinkages in Lebanon



High Priority Interlinkages in Lebanon



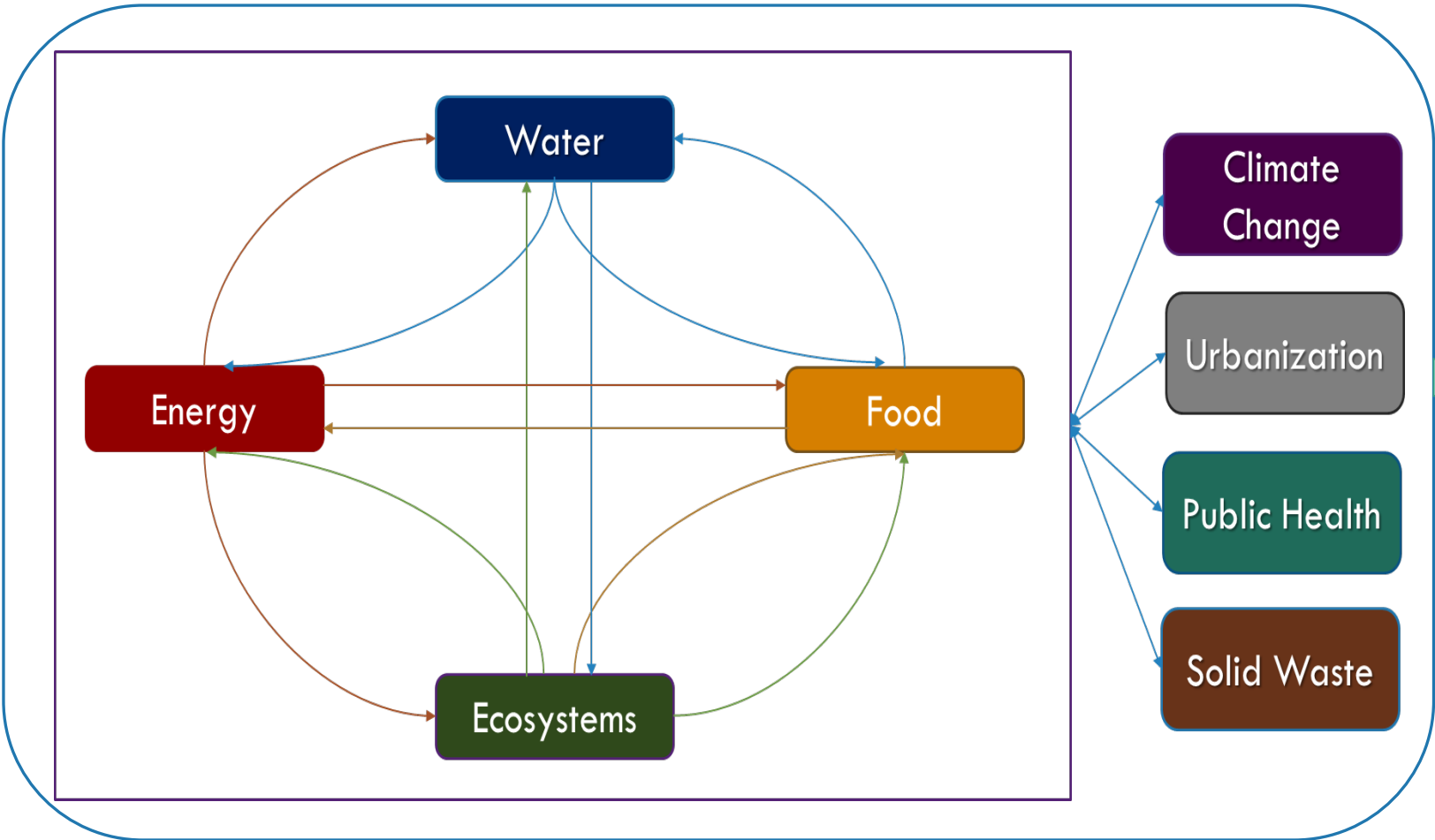


WEFE Assessment in Lebanon

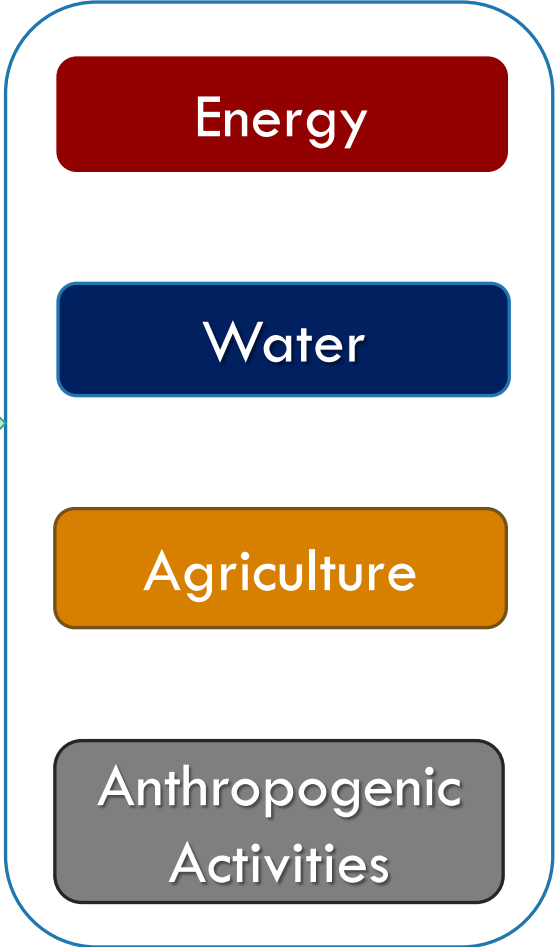
Entry Points to WEFE Nexus Solutions

Entry Points for Nexus Solutions

High Priority Interlinkages



4 Entry Pts



Entry Points to WEFE Nexus Solutions

Energy - (Water-Food-Ecosystems): focuses on the impact of energy shortages, high prices and unreliability on the performance and status of other sectors and their dependency on it and the need to secure the energy needs for water and wastewater facilities and agricultural activities, that will result in improved conditions for ecosystems.

Entry Points to WEFEE Nexus Solutions

Water – (Food –Ecosystems): highlights the need for the proper management of the water sector, including wastewater, to produce high quality food, reduce energy needs in the sector, create healthy ecosystems and protect public health.

Entry Points to WEF E Nexus Solutions

Agriculture - (Water – Energy – Ecosystems): focuses on the impact of unsustainable agricultural practices on the other Nexus sectors and potentials for improvement through various alternatives to current practices.

Entry Points to WEF Nexus Solutions

Anthropogenic Activities – Ecosystems: focuses on negative impacts of anthropogenic activities on ecosystems from outside the WEF Sectors (Solid Waste, Liquid Waste, Urbanization, etc.)

Policies, Strategies and Laws Addressing Interlinkages

Water Code (laws 77/2018 & 192/2020)

National Agriculture Strategy (NAS 2020-2025)

Nationally Determined Contribution (NDC 2020)

National Water Sector Strategy (2020-2035)

Documents Considering WEFE Interlinkages

Protection of the environment Law 444/2002

National Renewable Energy Action Plan & Energy Efficiency Action Plan (NREAP & NEEAP 2016-2020)

National Biodiversity Strategy and Action Plan (NBSAP), 2016-2030

EIA & SEA Decrees (8633/2012 & 8213/2012)

Barriers Limiting Lebanon's Capacity to Address Interlinkages

- Gaps in legal framework and lack of implementation/enforcement (including the establishment of needed entities that allow coordination and sectoral transparency)
- Lack of human resources at national authorities permitting efficient management of sectors
- Lack of efficient monitoring, data collection and information systems
- Lack of efficient system for sharing and exchange of information and expertise
- Shifting of sectoral management to short-term emergencies rather than long-term plans
- Lack of funds to implement existing strategies and national plans
- Political interference impeding cooperation among various stakeholders
- Weakness of scientific principles and sciences in decision making

Needs

Energy - (Water-Food-Ecosystems)

- Addressing gaps in legal framework that allow enhancement of power generation and rationalization of demand
- Understanding the needs of various sectors and potentiality to enhance their energy efficiency
- Decreasing energy cost of running the facilities
- Integrating interlinkages with energy sector in project planning

Needs

Water – (Food –Ecosystems)

- Addressing gaps in legal framework
- Understanding the availability and status of the resources
- Understanding production capacity and needs of various sectors
- Enhancing resource availability and decrease losses and wastage
- Decreasing stresses on resources
- Enhancing performance of facilities

Needs

Agriculture - (Water – Energy – Ecosystems)

- Understanding the availability and status of the resources
- Understanding production capacity and potentials for enhancement
- Decreasing cost of production
- Reducing reliance on imports
- Building capacities of farmers on sustainable production
- Enhancing resilience to Climate Change

Needs

Anthropogenic Activities - Ecosystems

- Addressing gaps in legal framework
- Enforcing laws limiting negative impacts of activities
- Understanding pollution sources and remediating polluted resources



WEFE Assessment in Lebanon

Identified WEFE Nexus Solutions

Entry Point 1

ENERGY

Goal 1: Enhance energy sector's planning and closing of the energy gap

Obj. 1. Promote Renewable Energy use and Energy conservation

1.1 Strengthen the legislative and policy framework for RE

1.2 Enhance Energy Security of Water, Wastewater and Food Facilities (through RE)

1.3 Promote low energy consuming technologies

Obj. 2. Support transparency and integrated planning in the energy sector

2.1 Calculate Yearly Energy Balance for Lebanon

2.2 Enhance the Integrated Management of Energy and Water

Entry Point 2

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 1. Promote Renewable Energy use and Energy conservation

1.1 Develop groundwater recharge master plans

1.2 Promote stormwater management practices that enhance groundwater recharge

Obj. 2. Preparation of basin management plans for the rivers of Lebanon

2.1 Assess water resources, production, uses and consumption within the river basins

Obj. 3. Adopt water saving measures and non-conventional water resources use

3.1 Reduce losses at the level of production and distribution

3.2 Reduce water consumption

3.3 Promote the use of non-conventional water resources

Entry Point 3

Food

Goal 3: Enhance Sustainability of Agricultural Production & Food Security

Obj. 1. Enhance agricultural planning at watershed level

1.1 Sustainable agriculture master at watershed levels (based on availability and quality of resources)

Obj. 2. Promote Sustainable Agricultural Practices and Enhance Food Security

2.1 Adopt and mainstream sustainable agricultural practices

2.2 Local production of agricultural inputs and foodstuffs to reduce reliance on imports

Entry Point 4

Ecosystem Protection

Goal 4: Protection of Ecosystems from Anthropogenic Pressures

Obj. 1. Enhance Forest management

1.1 Promote sustainable forest management and integration with food and energy sectors

Obj. 2. Control pollution sources

2.1 Improve Solid Waste Management

2.2 Reduce and control sources of liquid waste

Obj. 3. Prioritize environmental protection in policies, plans and projects and raise public awareness

3.1 Integrate environmental and ecosystems protection in policies, plans and projects

3.2 Enhance public awareness on environmental and ecosystems value and protection need



WEFE Assessment in Lebanon
Identified WEFE Nexus Solutions
Activities

ENERGY

Goal 1: Enhance energy sector's planning and closing of the energy gap

Objective 1. Promote Renewable Energy use and Energy conservation

1.1
Strengthen
the
legislative
and policy
framework
for RE

Activities

1. Approval of the Distributed Renewable Energy law and the Energy Conservation law

2. Preparation of Executing Decrees for the Distributed Renewable Energy law and the Energy Conservation law.

Alignment with National Plans & Strategies

NREAP 2016-2020
NEEAP 2016-2020

ENERGY

Goal 1: Enhance energy sector’s planning and closing of the energy gap

Obj. 1. Promote Renewable Energy use and Energy conservation

1.2 Enhance Energy Security of Water, Wastewater and Food Facilities (through RE)

Activities

- 1. Increase the use of solar energy to operate water supply facilities**
- 2. Increase the use of renewable energy, mainly solar, to operate wastewater treatment plants (WWTP)**
- 3. Increase the usage of solar energy for food production along with energy efficiency measures,**
- 4. Design and develop novel agro-energy cooperative models, and replicable business model**

Alignment with National Plans & Strategies

NREAP 2016-2020
 NEEAP 2016-2020
 NDC 2020
 NWSS 2020-2035
 NAS 2020-2025

ENERGY

Goal 1: Enhance energy sector’s planning and closing of the energy gap

Obj. 1. Promote Renewable Energy use and Energy conservation

1.3 Promote low energy consuming technologies

Activities

- 1. Increase energy efficiency of facilities belonging to the institutions related to the WEFE sectors**
- 2. Enhance existing practices of water transmission by gravity**
- 3. Test the application of low energy consumption wastewater treatment techniques/facilities that would also enable grey-water use for agricultural purposes -such as constructed wetlands- and upscale successful results**

Alignment with National Plans & Strategies

NREAP 2016-2020
 NEEAP 2016-2020
 NDC 2020
 NWSS 2020-2035

ENERGY

Goal 1: Enhance energy sector's planning and closing of the energy gap

Objective 2. Support transparency and integrated planning in the energy sector

2.1 Calculate Yearly Energy Balance for Lebanon

Activities

- 1. Develop guidelines and a methodology for data collection at different levels (primary and behind the meter level)
- 2. Develop a methodology to set a national energy balance and Energy Indicators database platform
- 3. Develop recommendations and guidelines on how to develop the platform that will be used to calculate the yearly energy balance for Lebanon

Alignment with National Plans & Strategies

Law No 462/2002
NREAP 2016-2020
NEEAP 2016-2020

ENERGY

Goal 1: Enhance energy sector’s planning and closing of the energy gap

Objective 2. Support transparency and integrated planning in the energy sector

2.2 Enhance the Integrated Management of Energy and Water

Activities

1. Develop Energy-Water master plans at the regional level

2. In MoEW plans (RE/power production), integrate the Nexus approach specifically when water resources are used either for utilities purpose or hydro production

3. Consider the energy needs, potentials to increase efficiency and use RE in of water sector projects

Alignment with National Plans & Strategies

NWSS 2020-2035
 NDC 2020
 NREAP 2016-2020
 NEEAP 2016-2020

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 1. Promote Renewable Energy use and Energy conservation

1.1 Develop groundwater recharge master plans

Activities

- 1. Map sensitive Groundwater (GW) recharge areas including the delineation of areas and their classification based on the quality of water expected within these areas
- 2. Assess aquifers in Lebanon, including the estimation of available quantities, recharge rates, and water quality.
- 3. Establish protection zones in urban master plans for aquifer recharge areas

Alignment with National Plans & Strategies

NWSS 2020-2035

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 1. Promote Renewable Energy use and Energy conservation

1.2 Promote stormwater management practices that enhance groundwater recharge

Activities

- 1. In permitting for development and infrastructures include as a requirement on-site stormwater recharge especially in rural settings
- 2. Separate stormwater collection system and wastewater collection system and promote recharge
- 3. Create storm water recharge projects within every set of quarters within the coastal cities

Alignment with National Plans & Strategies

NWSS 2020-2035

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 1. Promote Renewable Energy use and Energy conservation

1.2 Promote stormwater management practices that enhance groundwater recharge

Activities

- 4. Implement recharge galleries wherever possible.
- 5. Ameliorate current sidewalk and elevated berms to have them with grade or below grade.
- 6. Promote the reintroduction of traditional terraces throughout the Lebanese landscape
- 7. Develop guidelines and national standards for public green infrastructure that prioritizes GW recharge and better management of storm water, & adoption of suitable designs and materials

Alignment with National Plans & Strategies

NWSS 2020-2035

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 2. Preparation of basin management plans for the rivers of Lebanon

2.1 Assess water resources, production, uses and consumption within the river basins

Activities

1. Analyze the state and pressures on water resources (quantity and quality), proposition of specific measures to address and mitigate identified issues
2. Conduct hydrological and hydrogeological analysis of basins, taking into consideration climate change trends and projections
3. Calculate water balance at the level of river basins
4. Monitor water point (production sources)
5. Develop river basin management plans

Alignment with National Plans & Strategies

NWSS 2020-2035
Water Code (laws 77/2018 & 192/2020)

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 3. Adopt water saving measures and non-conventional water resources use

3.1 Reduce losses at the level of production and distribution

Activities

1. Upgrade and maintain water distribution networks to reduce leakages and wastage

Alignment with National Plans & Strategies

NWSS 2020-2035

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 3. Adopt water saving measures and non-conventional water resources use

3.2 Reduce water consumption

Activities

- 1. Promote water savings in specific sectors through the development of guidelines targeting each sector (industries, hospitality, health care, education, etc.)
- 2. National communication and awareness raising campaigns (water scarcity and saving)
- 3. Install of meters to monitor consumption and adjustment of billing accordingly
- 4. Create database for data collected on water consumption

Alignment with National Plans & Strategies

NWSS 2020-2035

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 3. Adopt water saving measures and non-conventional water resources use

3.2 Reduce water consumption

Activities

5. Set goals for specific sectors to incentivize water-saving

6. Support farmers in water saving irrigation technologies, raising awareness and capacity building on water saving techniques

7. Promote the use of water-efficient technologies in the hospitality sector and industrial facilities.

Alignment with National Plans & Strategies

NWSS 2020-2035
NDC 2020
NAS 2020-2025

Water

Goal 2: Protect and Enhance Water Resources Management in Lebanon

Obj. 3. Adopt water saving measures and non-conventional water resources use

3.3 Promote the use of non-conventional water resources

Activities

- 1. Rainwater harvesting, and installation of treatment units where needed
- 2. Use of treated wastewater in agriculture/irrigation provided that the treatment degree results in a suitable effluent quality
- 3. Separate collection of grey and black water at the level of buildings and treatment of greywater using small units and reuse for non-potable purposes.

Alignment with National Plans & Strategies

NWSS 2020-2035
NDC 2020

Food

Goal 3: Enhance Sustainability of Agricultural Production & Food Security

Obj. 1. Enhance agricultural planning at watershed level

1.1 Sustainable agriculture master plan at watershed levels (based on availability and quality of resources)

Activities

1. Development of a national baseline map, identifying available resources for agriculture and food production for each region/watershed (including animal farming, aquaculture, and fishing).

2. Integrate agriculture into urban development programs (smart urban concepts for improving and encouraging agriculture and transport and marketing of products close to the production sites)

Alignment with National Plans & Strategies

NAS 2020-2025

Food

Goal 3: Enhance Sustainability of Agricultural Production & Food Security

Obj. 2. Promote Sustainable Agricultural Practices and Enhance Food Security

2.1 Adopt and mainstream sustainable agricultural practices

Activities

- 1. Adopt Water Saving Agriculture Practices (crop selection, agroforestry, zero tillage, winter cover crops, integration with animal production, etc.)
- 2. Recycle agricultural wastes through composting
- 3. Upcycle agricultural waste into alternative fuels
- 4. Adopt the principles of Integrated Pest Management

Alignment with National Plans & Strategies

NAS 2020-2025

Food

Goal 3: Enhance Sustainability of Agricultural Production & Food Security

Obj. 2. Promote Sustainable Agricultural Practices and Enhance Food Security

2.1 Adopt and mainstream sustainable agricultural practices

Activities

5. Promote sustainable animal farming with high productivity and health and safety standards

6. Provide awareness and capacity building for farmers on sustainable practices that reduce cost of production and increase revenues

7. Capacity building of fishermen on sustainable fishing practices

Alignment with National Plans & Strategies

NAS 2020-2025

Food

Goal 3: Enhance Sustainability of Agricultural Production & Food Security

Obj. 2. Promote Sustainable Agricultural Practices and Enhance Food Security

2.2 Local production of agricultural inputs and foodstuffs to reduce reliance on imports

Activities

- 1. Create simple and affordable composting facilities of farm by-products
- 2. Promote sustainable farming and multi-cropping methods in abandoned terraces to grow several varieties of crops that contribute to food security
- 3. Integrate freshwater aquaculture into irrigated farms to benefit from existing hill lakes
- 4. Provide trainings for fish rearing and processing

Alignment with National Plans & Strategies

NAS 2020-2025

Food

Goal 3: Enhance Sustainability of Agricultural Production & Food Security

Obj. 2. Promote Sustainable Agricultural Practices and Enhance Food Security

2.2 Local production of agricultural inputs and foodstuffs to reduce reliance on imports

Activities

- 5. Create and promote small-scale fish feed production units based on local raw material (waste)
- 6. Recycle by-products of food industries and vegetable markets to produce animal feed, fertilizers, and other useful added value products
- 7. Training and capacity building for farmers and research centers on seed production & conservation

Alignment with National Plans & Strategies

NAS 2020-2025

Ecosystem Protection

Goal 4: Protection of Ecosystems from Anthropogenic Pressures

Obj. 1. Enhance Forest management

1.1 Promote sustainable forest management and integration with food and energy sectors

Activities

1. Development of sustainable forest management plans

2. Processing and reuse of forest biomass (composting, fuel, etc.)

Alignment with National Plans & Strategies

NAS 2020-2025
NDC 2020

Ecosystem Protection

Goal 4: Protection of Ecosystems from Anthropogenic Pressures

Obj. 2. Control pollution sources

2.1 Improve Solid Waste Management

Activities

1. Enforcement of the Integrated Solid Waste Management (ISWM) Law
2. Control solid waste generated from industries and healthcare facilities through enforcement of laws regulating specific waste streams
3. Adopt ISWM principles: waste reduction, sorting at source and valorization, reuse, recycle and divert waste from open dumps and landfills
4. Close and Rehabilitate open dumpsites

Alignment with National Plans & Strategies

ISWM Law (80/2018)
Law 444/2002 Protection of the Environment

Ecosystem Protection

Goal 4: Protection of Ecosystems from Anthropogenic Pressures

Obj. 2. Control pollution sources

2.2 Reduce and control sources of liquid waste

Activities

1. Enhance domestic wastewater collection and treatment (through increasing collection network coverage, wastewater treatment plant coverage and treatment levels, proper management of sludge)

2. Enforce legislation imposing pollution limit values on liquid effluents from industrial facilities, hospitality facilities, healthcare facilities, etc. (including the installation of treatment units)

Alignment with National Plans & Strategies

NWSS 2020-2035
Water Code
Law 444/2002 Protection of the Environment
MoE decisions related to pollution control

Ecosystem Protection

Goal 4: Protection of Ecosystems from Anthropogenic Pressures

Obj. 3. Prioritize environmental protection in policies, plans and projects and raise public awareness

3.1 Integrate environmental and ecosystems protection in policies, plans and projects

Activities

1. Strengthen the implementation of EIA and SEA decrees (8633/2012 and 8213/2012)
2. Improve coordination between ministries to ensure better implementation of environmental legislation
3. Ensure holding National Environment Council periodic meetings (decree number 8157/2012)
4. Support adoption and issuance of ICZM draft Law & Strategy & integrate WEFE Nexus recommendations
5. Integrate WEFE Nexus and ICZM in update of NPMPLT/SDATL

Alignment with National Plans & Strategies

Environmental Legislation Law 444/2002 Protection of the Environment

Ecosystem Protection

Goal 4: Protection of Ecosystems from Anthropogenic Pressures

Obj. 3. Prioritize environmental protection in policies, plans and projects and raise public awareness

3.2 Enhance public awareness on environmental and ecosystems value and protection need

Activities

1. Develop awareness campaigns for public and private actors on ecosystem protection .
2. Update and implement/adopt National Strategy for Environmental Education developed by AFDC and adopted by the MEHE (2012)
3. Encourage community-based activities to tackle afforestation/reforestation, quarry and landscape restoration, climate change adaptation, fire prevention and management, rural tourism management, biodiversity conservation, etc.

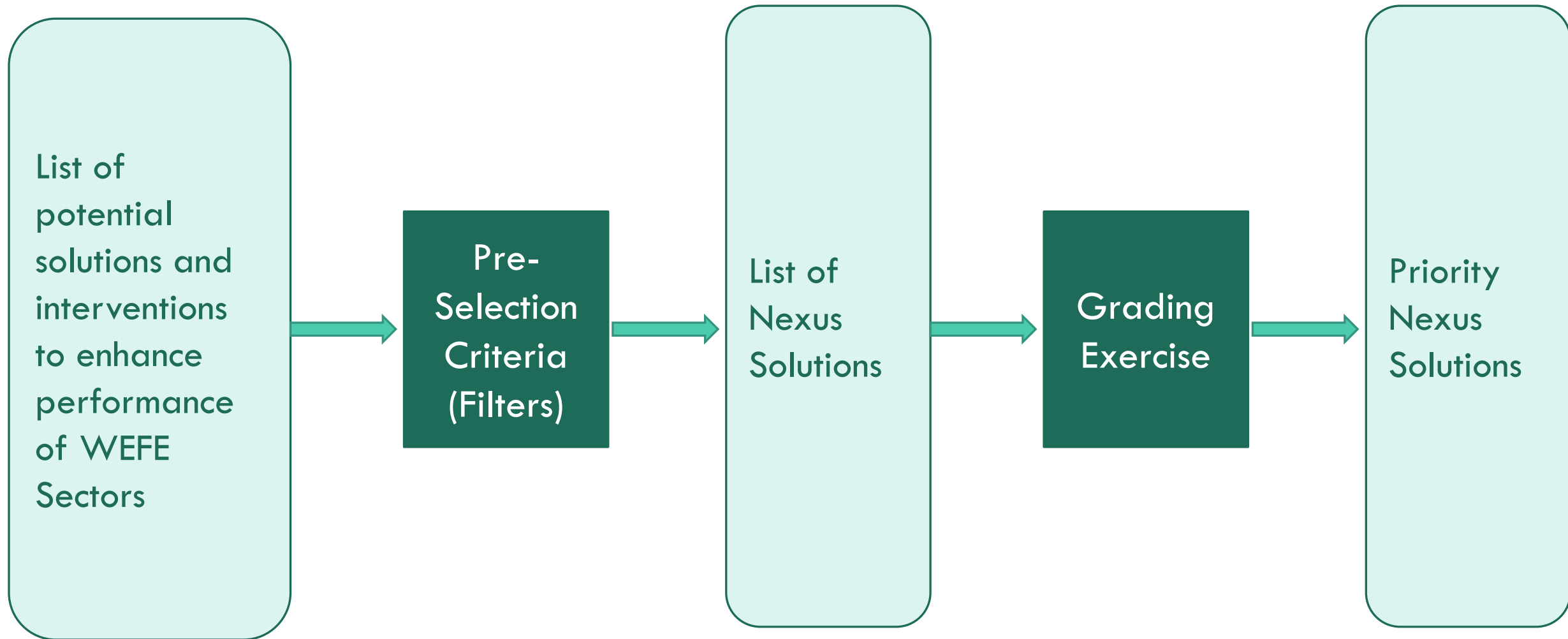
Alignment with National Plans & Strategies

- MOA/NAS (2020-2025)
- NBSAP (2016-2030)
- National Afforestation and Reforestation Program (NARP) 2014-2028
- Lebanon National Forest Plan (2015-2025)



WEFE Assessment in Lebanon Selection and Prioritization

Methodology for Selection of WEFE Solutions



Selection and Prioritization Criteria

Pre-Selection Criteria (Filters)

- Environmental Protection and Conservation
- Address interlinkages/facilitate management of interlinkages
- Positive impact on WEFE sectors
- Contribution to Climate Change Resilience
- Technical Feasibility

Selection and Prioritization Criteria

Prioritization Criteria

- Foreseen Degree of Positive Impact on each of the WEFE sectors.
- **Governance:**
 - Impact on legal framework
 - Impact on administrative framework
 - Alignment with national strategies and action plans
- **Financial sustainability:**
 - needed capital cost/investment
 - needed operation and maintenance cost
 - possibility for cost recovery
 - existence of funding mechanism

Grading System

Criteria	Grading System	0	1	2	3	4	5
Impact on Sector	For each of the 4 sectors	No impact	Low	Medium-Low	Medium	Medium-High	High
Governance	For each of the categories	No impact	Low	Medium-Low	Medium	Medium-High	High
Financial Sustainability	Capital Cost	NA	High Cost	Medium-High	Medium	Medium-Low	Low Cost
	O&M	NA	High Cost	Medium-High	Medium	Medium-Low	Low Cost
	Possibility for Cost Recovery	NA	Low	Medium-Low	Medium	Medium-High	High
	Existence of Funding Mechanism	No Mechanism	Minimal Options		Medium		Many Options

Prioritization of Solutions

- The WEFE Nexus Assessment has identified about 80 WEFE Nexus actions/solutions
- The solutions (grouped under goals, objectives and sub-objectives) while interconnected can be implemented as stand-alone solutions
- The prioritization of projects has been conducted on these solutions
- Solutions are short-term (1-2 years), medium-term (2-5 years) and long-term (>5years)
- The grading exercise served as a tool to evaluate the solutions on unified basis
- The solutions were divided into 2 categories: Governance related and Other Projects to ensure better comparison

Prioritization of Governance Solutions

Rank	Project	Total Score
1	Setting-up and sustaining an inter-sectoral body that will allow for better coordination among the WEFE sectors	44
2	Development of executive decrees for the Distributed Renewable Energy law and the Energy Conservation law	40
3	Integrating the outcomes of the WEFE Nexus assessment and the WEFE Nexus approach in the update of draft law for ICZM and update related draft strategy (developed in 2015) with its recommendations	33

Prioritization of Other Solutions

Rank	Project	Total Score
1	Developing groundwater recharge master plans	38
2	Implementing solar installations for WWTP	36
2	Accounting for stormwater recharge within every developable plot, especially in rural settings.	36
3	Implementing solar installations for food and agriculture sectors	35
4	Implementing solar installations for water supply facilities	34
4	Recycling of agricultural waste to produce alternative fuel	34
5	Increasing energy efficiency of various facilities (public sector)	33
5	Development of guidelines and national standards for public green infrastructure that prioritizes GW recharge and better management of storm water, through the adoption of suitable designs and materials	33
5	In rehabilitating and developing new infrastructure, separate stormwater collection system and wastewater collection system	33
5	Identify and remove sources polluting water resources	33
5	Promote agricultural practices that minimize negative impacts and pollution of resources and damage to ecosystems	33

THANK YOU!