



Green Technology Transfer and Investment in Selected Sectors – Agriculture and Post-Conflict Solid Waste

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SDGs Implementation



Through an integrated approach and provided means of implementation are available, namely ...

Technology

Capacity Building

Finance

Definitions

Green Technology

.... Green technologies, in brief, are technologies “whose use is intended to mitigate or reverse the effects of human activity on the environment”. (*Fact Sheet - Green Technologies in the Energy Sector for Climate Change Mitigation in the ESCWA Region – an ESCWA Publication*)

Technology Transfer

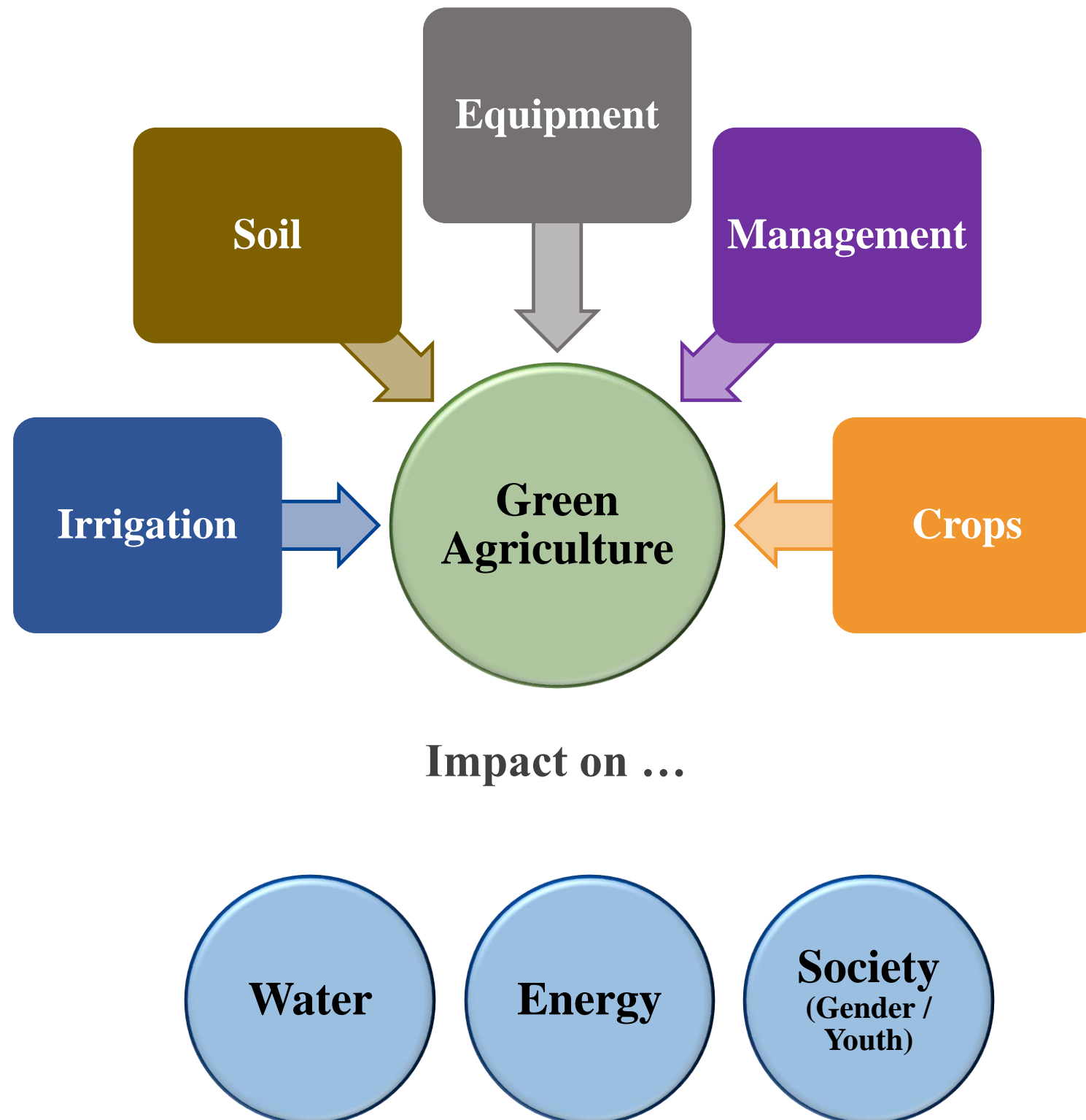
The broad set of processes covering the flows of know-how, experience and equipment, and is the result of many day-to-day decisions of the different stakeholders involved. (*Water-Energy Nexus Operational Toolkit Technology Transfer Module – an ESCWA Publication*)

Green Finance

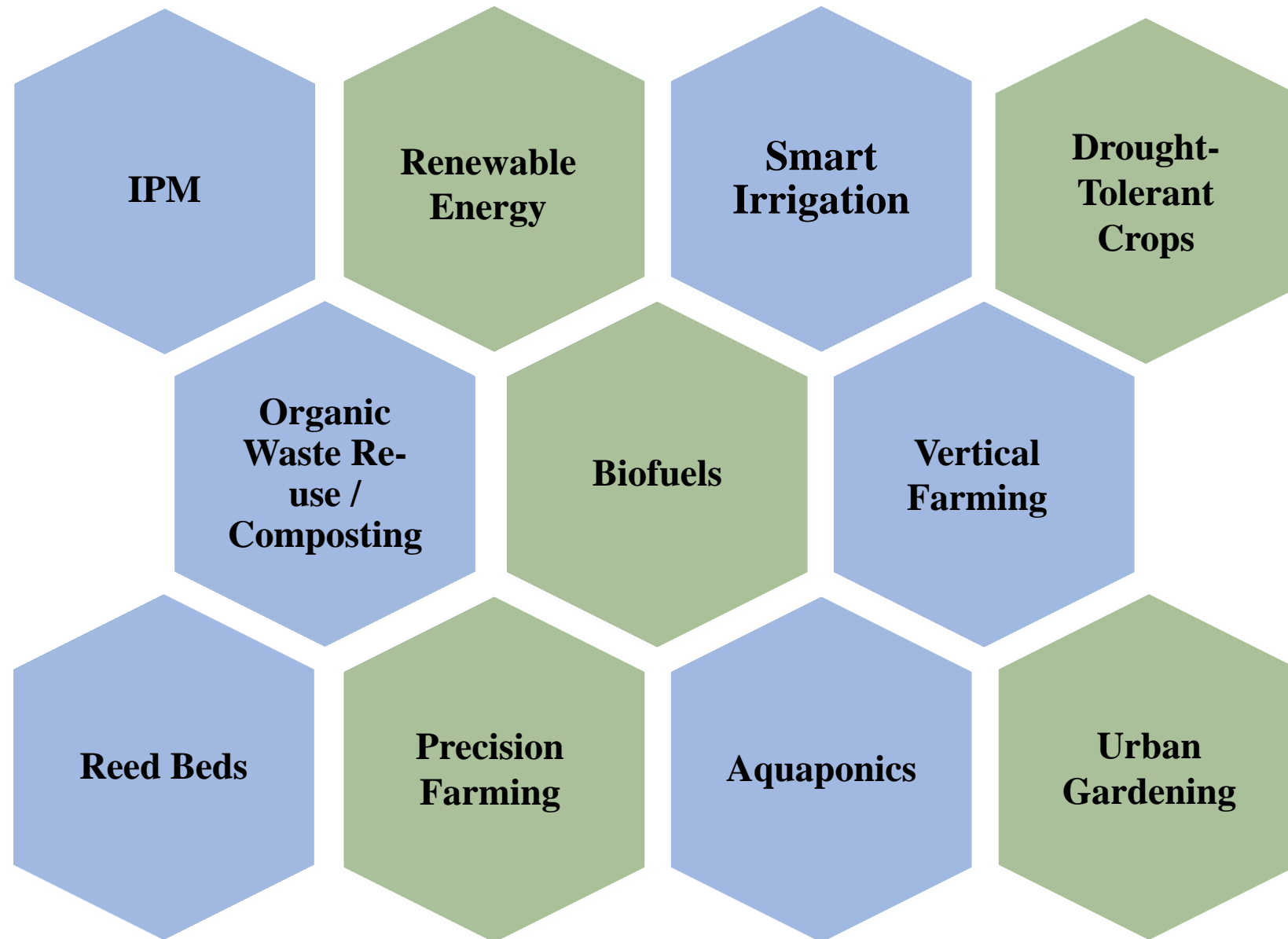
Green Finance encompasses all the initiatives taken by private and public agents (e.g. businesses, banks, governments, international organizations, etc.) in developing, promoting, implementing and supporting projects with sustainable impacts through financial instruments. (*International Trade Centre Website*)

Green Technology for Agriculture

Green Agriculture Elements and Links



Green Technologies for Agriculture



Examples of Green Technologies in Agriculture



From Wikimedia Commons



From projectfeed1010.com

Reed Beds

- Waste water treatment
- Fossil fuel energy saving
- Clean water for irrigation
- Plants for bio-fuel
- New eco system creation
- Job creation potential

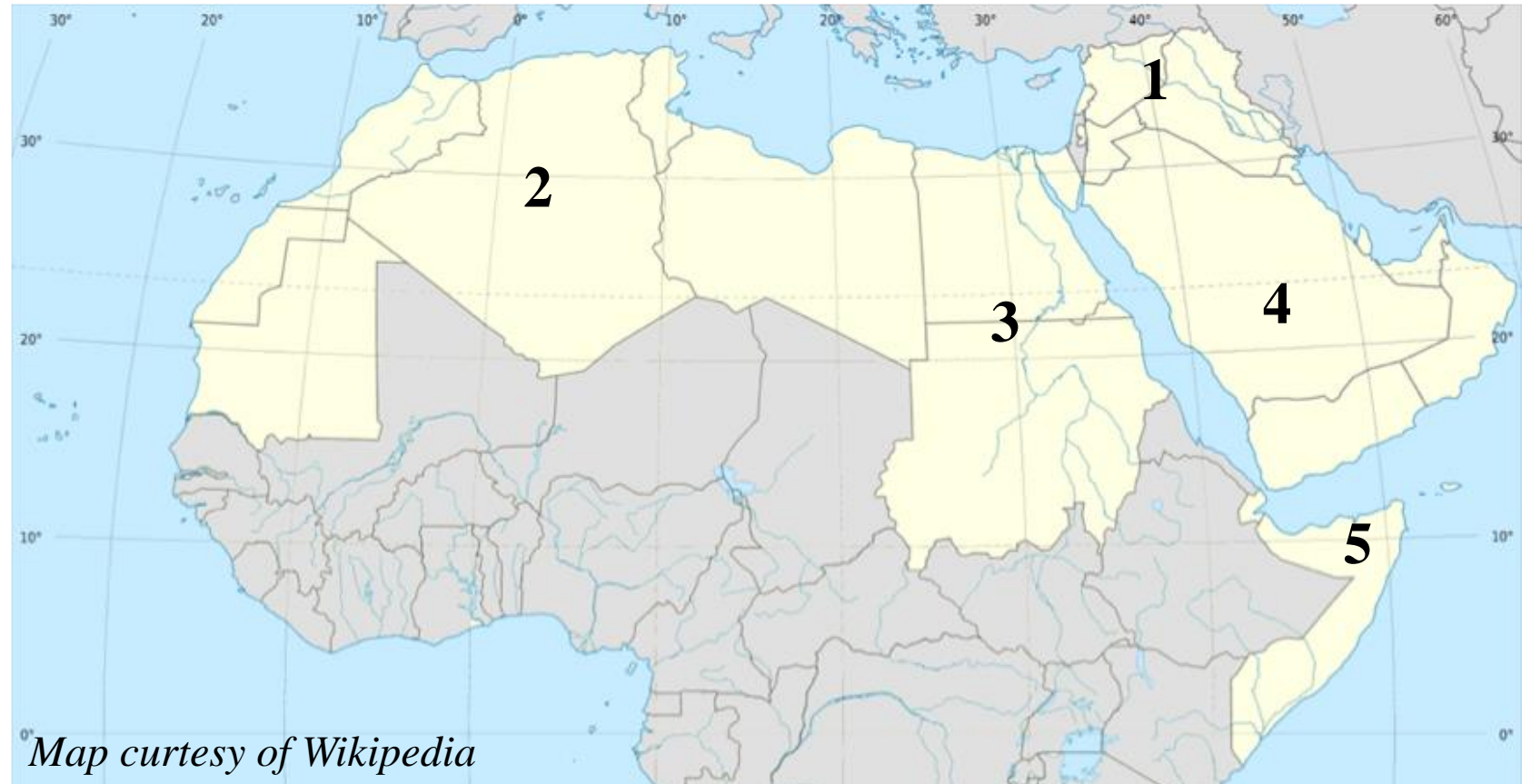
Aquaponics

- Aquaculture with hydroponics
- Organic
- Food production
- Renewable energy use
- Water re-use
- Job creation potential

Current Status in the Arab Region

- Almost all technologies mentioned exist in the Arab Region but at varying levels, in terms of:

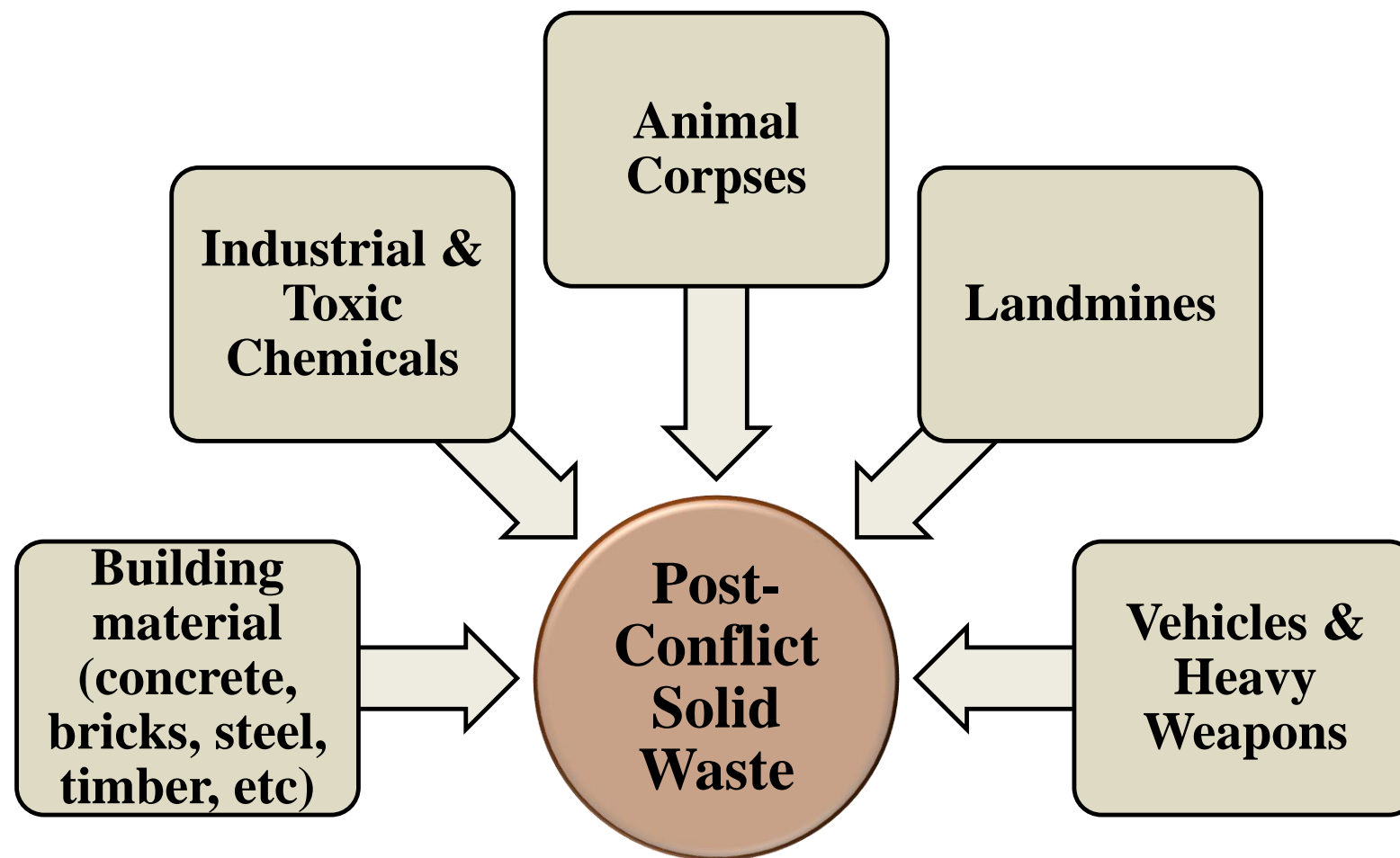
- ❖ Technology maturity (some still at experimental stage)
- ❖ Availability at individual country level
- ❖ Suitability
- ❖ Affordability



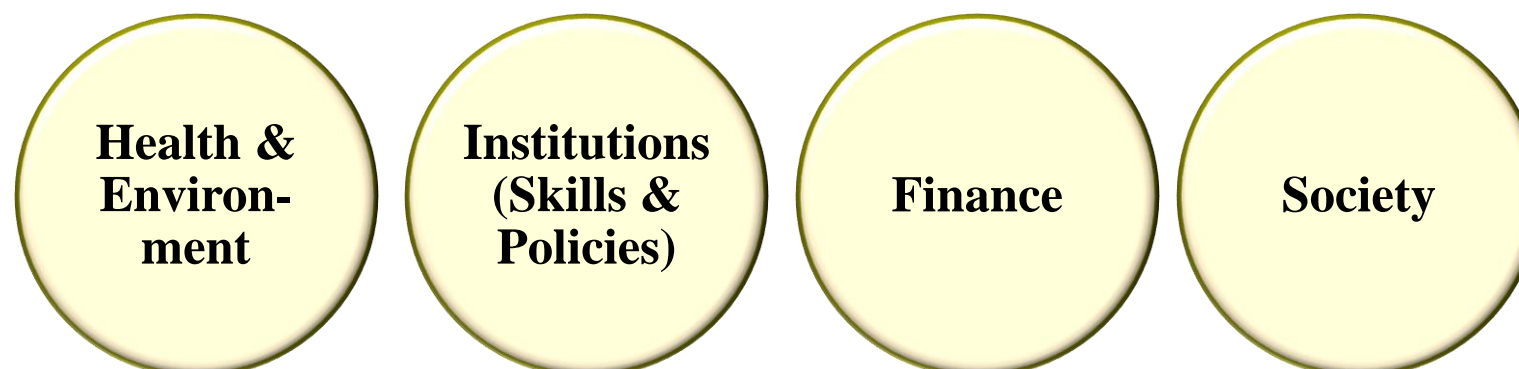
1. **Al Mashrek:** Iraq, Syria, Lebanon, Jordan and Palestine.
2. **Al Maghreb:** Libya, Tunisia, Algeria, Mauritania and Morocco.
3. **Nile Basin:** Egypt and Sudan.
4. **Arabian Peninsula:** Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Oman, Bahrain and Yemen.
5. **Sahel:** Somalia, Djibouti and Comoros Islands.

Green Technology for Post-Conflict Solid Waste

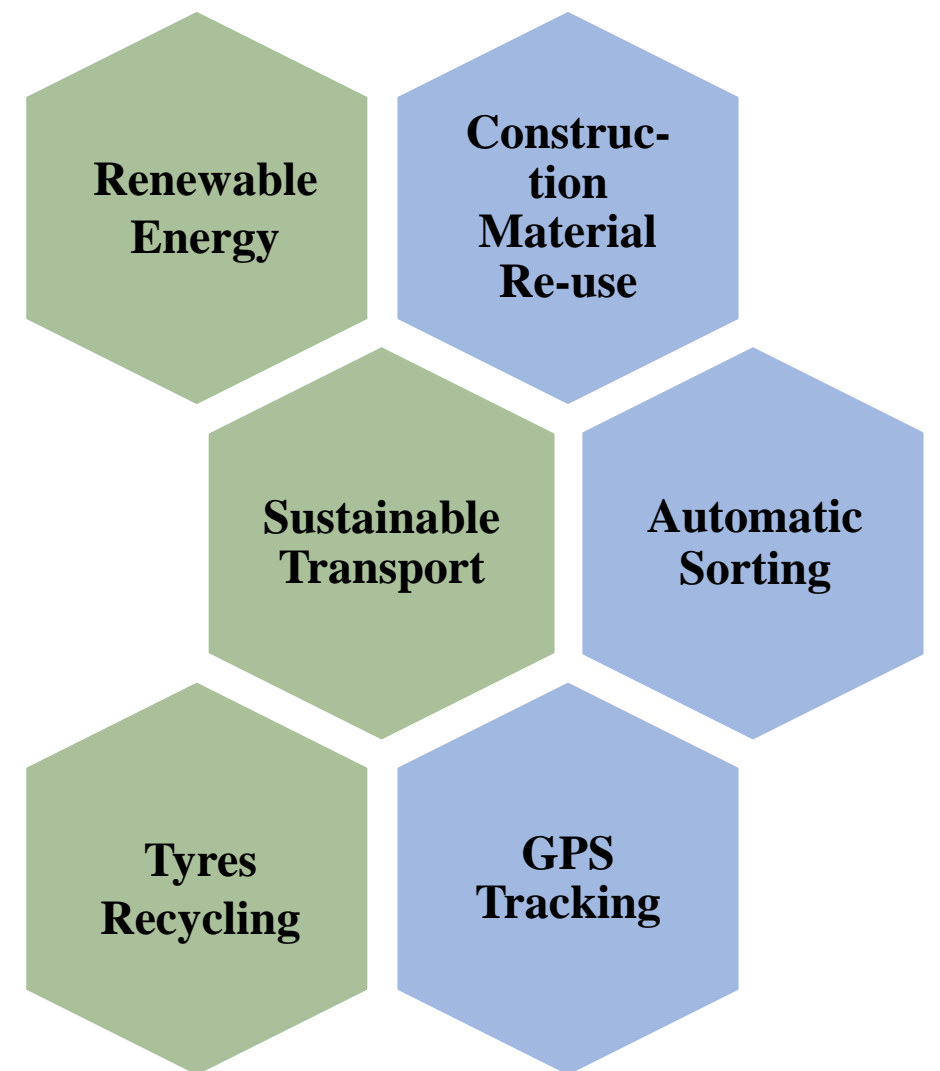
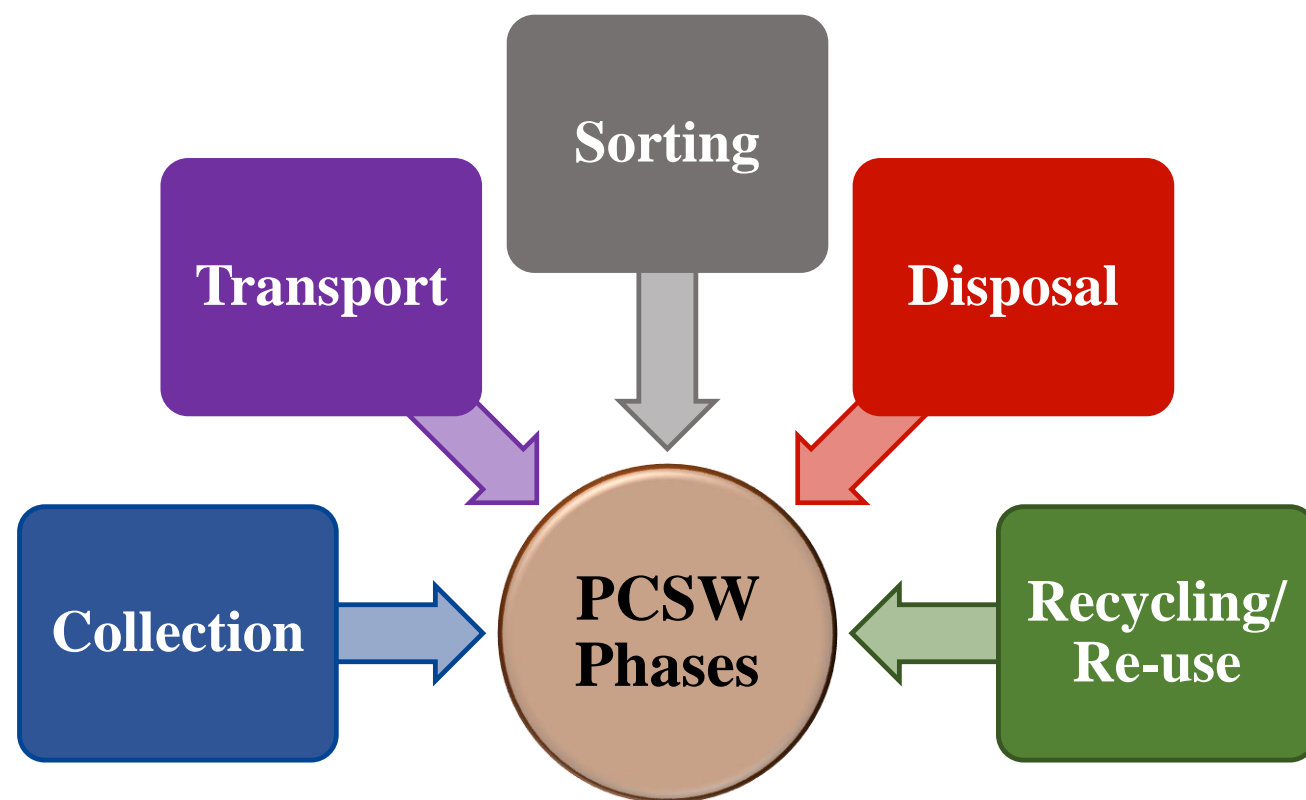
Post-Conflict Solid Waste Elements



Impact on ...

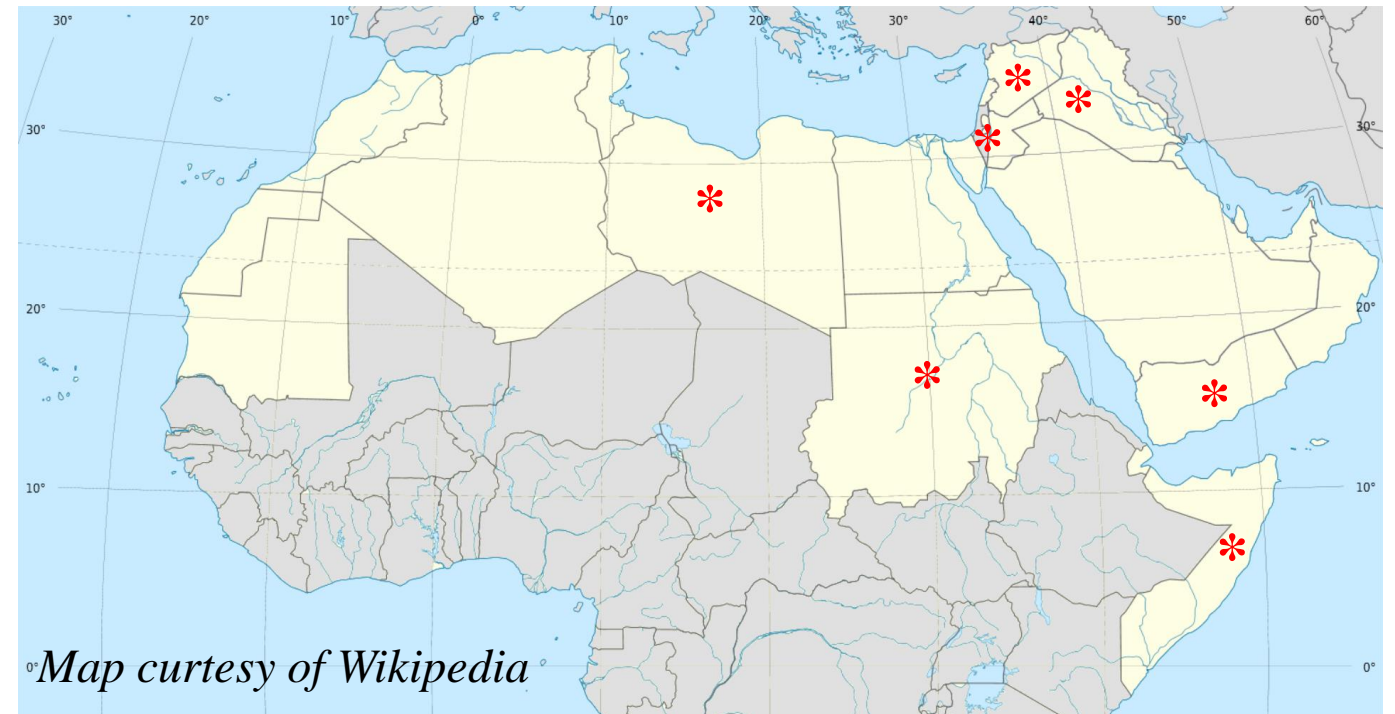


Post-Conflict Solid Waste Management Phases & Technologies



Current Status in the Arab Region

- Many Arab countries suffer from current and previous conflicts-generated solid waste
- Many countries (especially Europeans) and aid agencies fund programs related to solid waste management



- The majority of solid waste is disposed of in landfills or illegal dump sites
- Construction debris (if uncontaminated) is the easiest to re-use. E.g. In Gaza, all demolishing debris is re-used due to scarcity of materials under occupation
- Many affected countries have not even started to manage solid waste and just pile it up wherever space is found

Technology Transfer & Green Finance

Green Technology Transfer Mechanisms

National Level

- Between Academia/R&D and Industry
- Spin-offs and collaboration with existing companies
- Can be facilitated by government entities

Regional Level

- Within the Arab Region
- Can be facilitated by organizations such as ESCWA and LAS
- Regional collaboration between Arab countries and other neighbors

International Level

- NGO's
- Treaties/Agreements, IP institutions
- Some development banks
- Some developed Countries International Development Programs

- Can be offered as free help, collaboration or business transaction
- Must include technical support and capacity building
- Adopt Win-Win models, as much as possible
- Ensure IP rights are well respected

Green Technology Transfer Examples & Opportunities

National Level

- Various SME incubation programs
- University-based IP commercialization units
- Available in many Arab countries

Regional Level

- Qatar offshore agriculture in Somalia
- UAE-India partnership in sustainable agriculture technologies
- Mediterranean countries collaboration programs

International Level

- Paris Agreement
- WFP TT program in Sahrawi refugee camps in Algerian desert
- JIPA's GTTP and WIPO GREEN
- EBRD's FINTECC program in Egypt, Jordan, Tunisia and Morocco
- USAID and DFID
- ICARDA

Green Financing Sources

- Green finance can be made available at a **national, regional** and/or **international** level, from various sources, such as:
 - Government dedicated funding
 - Specialized Venture Capital firms
 - Development banks
 - Treaties/Agreements
 - Some developed Countries International Development Programs
 - NGO's
 - Public and/or private companies
 - Philanthropists
- It can come as a **donation, credit** or **contribution towards some role/share** in the project

Green Financing Examples

- Innovation and/or environment protection funds
- Science and technology foundations
- Denmark's Green Investment Facility (GIFs)
- CSR contributions from big companies (e.g. O&G companies in the GCC)
- Cleantech VC
- Green Climate Fund (GCF)
- GEF (SCCF and LDC Fund)
- The World Bank
- ISESCO
- Jordan Investment Commission
- MorSEFF
- Micro Credit Funds
- EBRD
- FEMIP Trust Fund
- Banks (e.g. special package for rooftop solar in residential areas by Bank Muscat in Oman)

Green Financing Access Challenges

- Banks see SME's as risky
- Insufficient knowledge by financial institutions
- Unattractive loan conditions
- Poor funding proposals
- Complex and resource-intensive application process
- Insufficient awareness of opportunities
- Insufficient policy to encourage sector (this is changing in many countries)
- Not enough demand yet for economy of scale

Conclusions

- The gap between the Arab Region and the Developed countries in terms of green technology for Agriculture and Solid Waste varies considerably, depending on which specific sub-region we are assessing.
- Availability of green technology transfer and green finance opportunities exists at national, regional and international level and is likely to increase.
- Some of the challenges faced currently are being addressed (e.g. policy and economy of scale).
- Awareness campaigns and support with applications processes would have a big impact, especially for the poorer countries, on accessing green technology transfer and green finance opportunities.