Mutah University

LOW-CARBON PRACTICES AND TECHNOLOGY

https://www.mutah.edu.jo/ar/enterprise/Home.aspx

https://www.mutah.edu.jo/en/pfc/Home.aspx

Revised December 2023
Mutah University
Maintenance and sustainable unit

Mutah University

Toward
"Green University-Surplus Energy University"

The world is gradually being driven to adopt more stringent and innovative practices to conserve and manage university energy resources. Mutah University's Energy Management Vision has become a growing priority for the university's management and technical staff in response to global and local energy crises. Several university units and centers work together to implement this vision, as illustrated in Figure 1.

1. **Training, Consultation, and Communication Center**
2. **Maintenance and Sustainable Unit**
3. **Prince Faisal Center for Dead Sea, Environmental and Energy Research**
4. **Entrepreneurship Center**
5. **Community and Development Center**

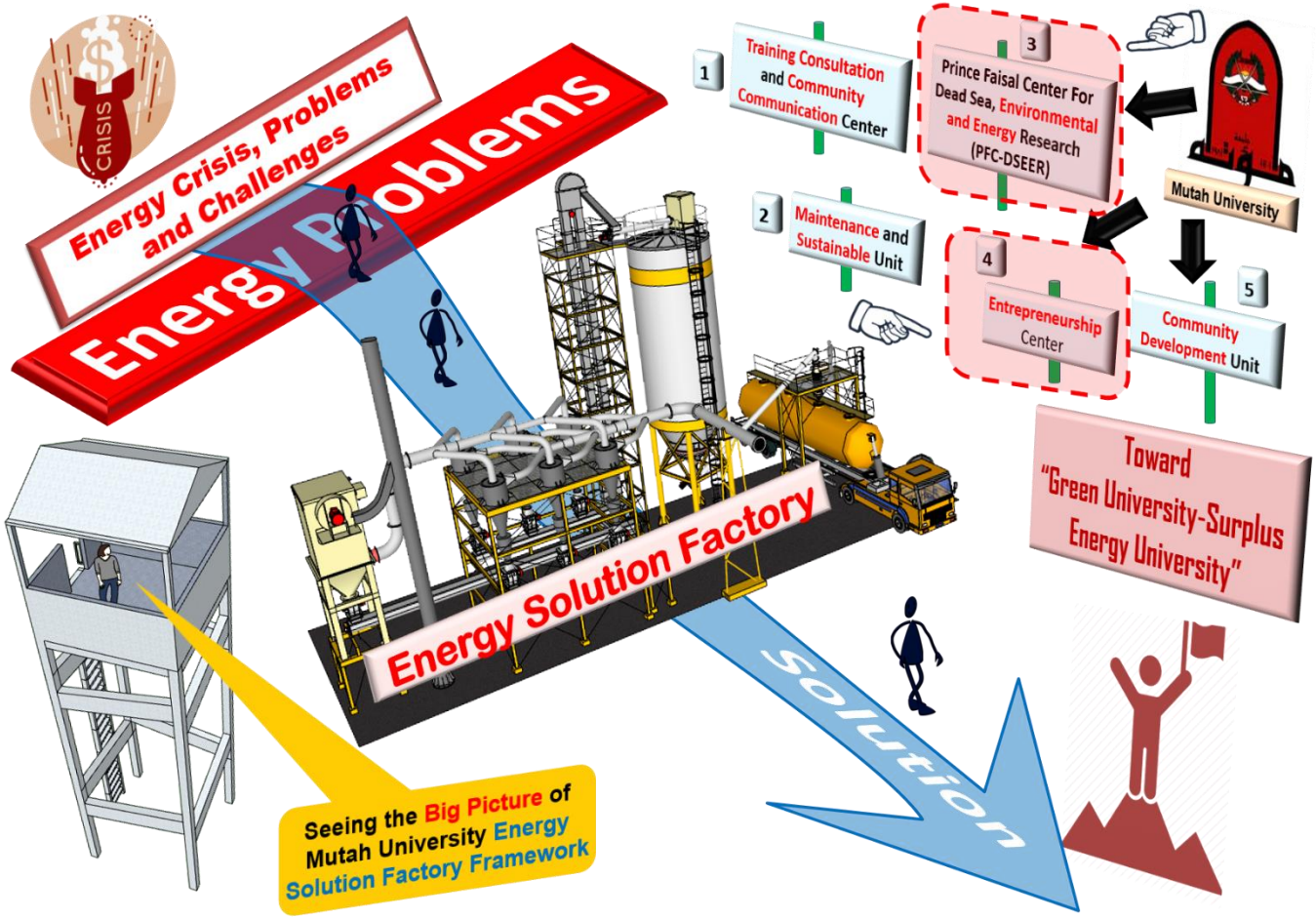

Figure 1: A Visual big picture of Mutah University Energy Management vision based on the Energy Solutions Factory Framework

Energy management efforts at Mutah University are hindered by fragmentation and a lack of an integrated vision to coordinate the diverse activities of its various units and centers. The Energy Solution Factory Framework is a crucial approach that can unify these efforts under one cohesive system and can be easily adapted to various contexts, as shown in Figure 1. Globally, academic institutions are recognized as hubs for policy development, technology advancement, and knowledge generation, fostering innovation across all fields. This philosophy views university centers and units as "factories" that transform challenges into opportunities, facilitating knowledge transfer and technologies while generating practical solutions. Mutah University's energy management vision is primarily built on this crucial Factory Solution Perspective, as depicted in Figure 1.

Integrated Picture of Mutah University Energy Management Activities

One of the key added values of the developed Energy Management Vision is the integration of various energy management practices. This vision unites the efforts of the five main university centers and units mentioned earlier into a cohesive framework to transform Mutah University into a green, energy-surplus institution, as shown in Figure 2. Addressing the negative impacts of fragmented efforts is critical, and creating an integrated view of the university's energy management activities is essential, as illustrated in Figure 2. Understanding the broader scope of these collaborative practices is crucial to achieving successful Energy Management Integration.

Road Map of Mutah University Energy Management Activities based on Seed to Fruit Framework

The previously adopted Solution Factory Framework helped create a generic template that organized all energy management efforts into a standardized solution-production model, making it adaptable and easily implemented across various contexts, as illustrated in Figure 1. Developing an integrated overview was the next crucial step in shifting our energy management approach from a fragmented to a more unified and continuous model, as shown in Figure 2. Now, the focus shifts towards deeper micro-integration, examining energy management activities from a "seed growth" perspective, which categorizes these activities into four types, as illustrated in Figure 3:

1. Seed Activities
2. Root Activities
3. Branch Activities
4. Fruit Activities

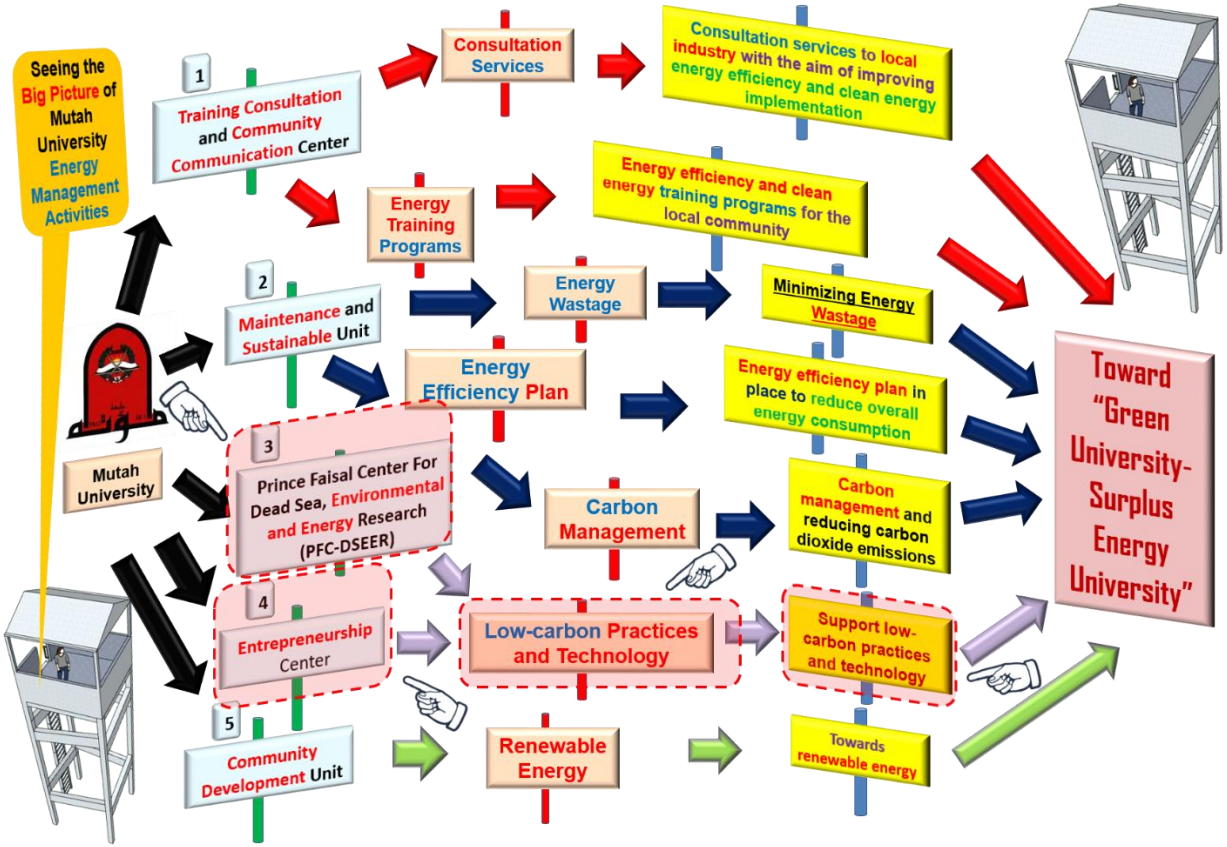

Figure 2: A Visual Big Picture of Mutah University Energy Management Activities

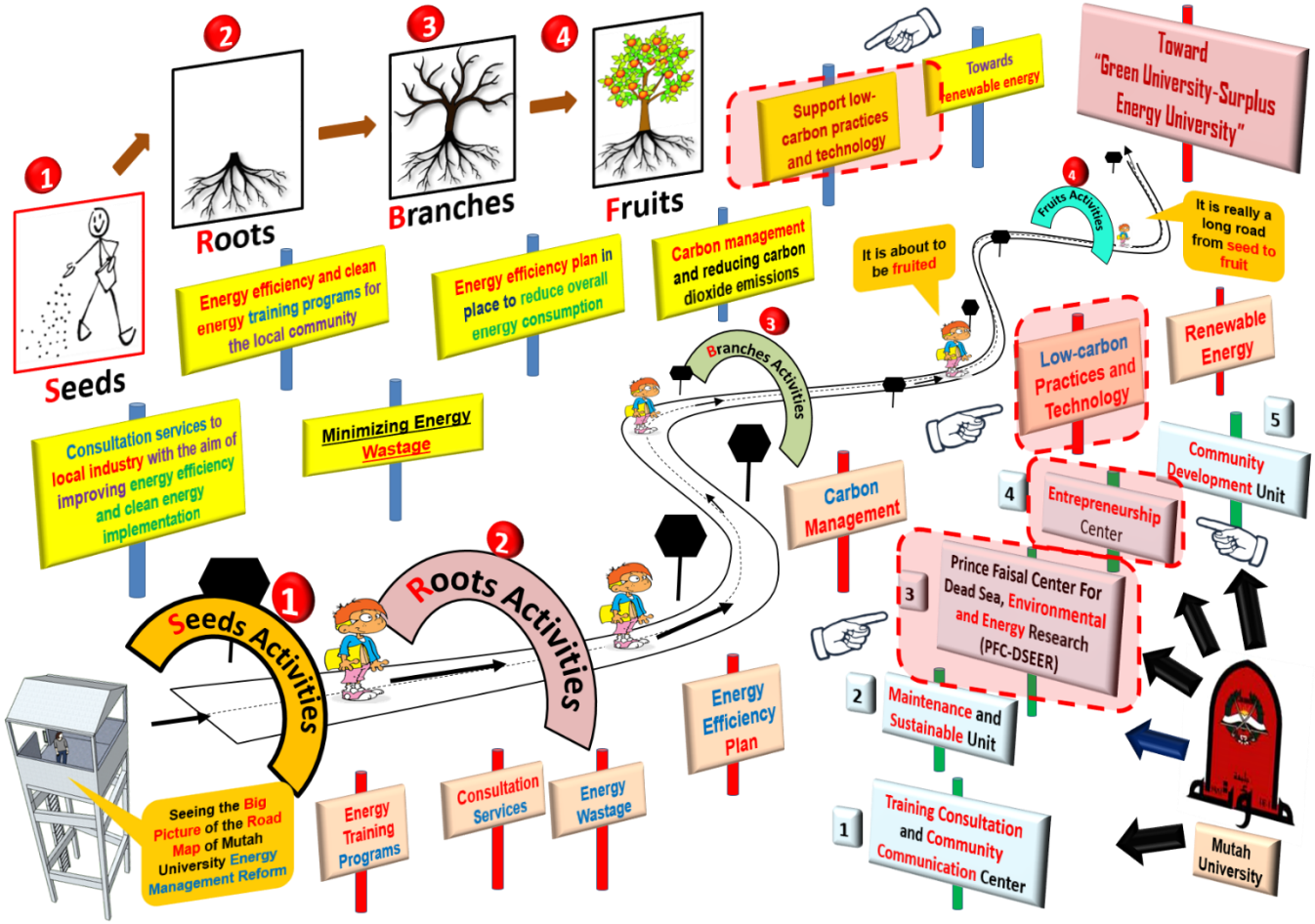

Figure 3: A Visual road map of Mutah University Energy Management Activities based on seed to fruit framework

This seed-to-fruit framework will add an instrumental relationship to the network of these fragments of activities and help shift Energy Management Thinking to the instrumental mode that gives meaning to these series and parallel network of practices, as illustrated in **Figure 3**.

Entrepreneurship Center and Prince Faisal Center For Dead Sea, Environmental and Energy Research (PFC-DSEER)

The Entrepreneurship Center at Mutah University is committed to fostering entrepreneurial ideas that drive the development of projects across small, medium, and large enterprises in diverse sectors, including industry, agriculture, and services. It achieves this by providing beneficiaries with essential personal and professional growth skills. The Center offers training programs, continuous guidance, and opportunities to connect with donors and industry experts, all aimed at helping participants successfully launch pilot projects and gain a competitive edge in the market.

The mission of the PFC-DSEER (Dead Sea, Environmental, Water, and Energy Research) is to advance, coordinate, and conduct research on the unique geological, industrial, and touristic challenges of the Dead Sea. While focusing on the Dead Sea, the Center's programs also address broader national and international issues, including water resources, environmental conservation, energy, and climate change. The PFC-DSEER aims to become a nationally and internationally recognized center of excellence, offering research, education, and advisory services to address challenges related to the Dead Sea, environment, and energy across multiple sectors.

Additionally, the PFC-DSEER serves as a regional and national hub for research in environmental studies. Although it does not grant degrees, its faculty and researchers are crucial mentors and advisors to undergraduate and graduate students who earn their degrees through their respective departments and faculties at Mutah University.

Entrepreneurship Center and PFC-DSEER Strategies

Their mission focuses on fostering a culture of innovation and supporting pioneering initiatives. They accomplish this by incubating innovative projects through specialized programs transforming creative ideas into sustainable entrepreneurial ventures that generate real job opportunities for the local community.

The strategic goals and objectives include:

- Raising awareness about the importance of initiating and developing entrepreneurial projects.
- Establishing business incubators and small enterprises to drive job creation and improve business practices.
- Empowering community members to create and manage pioneering projects in collaboration with relevant authorities.
- Developing and enhancing the skills of entrepreneurs through tailored educational and training programs.

- Supporting the transition from conventional to renewable energy and advocating for low-carbon alternatives.
- Mutah University, through its various centers, also offers consultancy programs related to the low-carbon economy in the energy sector. These programs aim to raise awareness about efficient energy use and promote sustainable energy choices.