Introduction (5 minutes)

1. Welcome the participants and introduce the workshop's topic.
2. Emphasize the importance of nutrient and water management in passive hydroponic systems for successful plant growth and resource conservation.

Nutrient Management for Passive Hydroponic Systems (15 minutes)

1. Explain that plants require essential nutrients, including macronutrients (nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur) and micronutrients (iron, manganese, zinc, copper, boron, molybdenum, and chlorine). Briefly describe the functions and roles of each nutrient in plant growth.
2. Introduce nutrient solutions used in passive hydroponic systems, explaining that they can be purchased pre-mixed or mixed individually. Discuss the pros and cons of each option.
3. Teach participants how to monitor and adjust nutrient levels in passive hydroponic systems, including recognizing signs of nutrient deficiency or toxicity. Demonstrate the use of tools such as EC meters and TDS meters for measuring nutrient concentration. Explain how to adjust nutrient levels based on plant requirements, considering factors like plant species, growth stage, and environmental conditions.

Water Requirements and Quality in Passive Hydroponics (15 minutes)

1. Discuss water quality factors, including pH and its effect on nutrient availability, hardness, salinity, and contaminants. Explain the importance of maintaining optimal water quality for plant growth in passive hydroponic systems.
2. Compare different water sources, such as tap water and rainwater, and discuss the need for water treatment methods and filtration to ensure adequate water quality.
3. Explain that different plants have varying water requirements, influenced by factors like plant species, growth stage, and climate. Teach participants how to monitor water usage and adjust passive hydroponic systems accordingly.

Water Conservation in Passive Hydroponic Systems (15 minutes)

1. Explain how passive hydroponic systems inherently conserve water compared to traditional soil-based systems.
2. Introduce water conservation strategies in passive hydroponic systems, such as efficient irrigation scheduling, reusing and recycling water, and rainwater harvesting and storage. Emphasize the importance of water conservation in urban farming.

3. Discuss challenges and solutions related to water management in urban farming with passive hydroponics, including limited water access and high water cost. Provide strategies for overcoming these challenges.

Energy Conservation (10 minutes)

1. Emphasize the importance of resource efficiency in achieving self-sufficiency in passive hydroponic urban farming.
2. Discuss energy-efficient solutions for urban farming, such as:
    - Passive solar design: Explain how to use the sun's energy to regulate temperature and light in hydroponic urban farming spaces.
    - Renewable energy sources: Introduce options like solar panels or wind turbines for generating electricity.
    - Energy-saving technologies: Discuss energy-efficient lighting, heating, and cooling systems for urban farms.

Conclusion (5 minutes)

1. Summarize the key takeaways from the workshop, emphasizing the importance of proper nutrient and water management for successful passive hydroponic urban farming.
2. Encourage participants to apply the knowledge gained during the workshop in their urban farming projects using passive hydroponics and provide resources and support for their ongoing urban farm.