

Summary of Session 5: Sustainability & Sustainable Development

Key Points:

1. Concept of Sustainability

- **Definition:** "Meeting the needs of the present without compromising the ability of future generations"
- **Three Dimensions:** Environmental + Social + Economic (interconnected, inseparable)
- **Engineer's Role:** Balancing these dimensions

2. Case Study: Electroplating Factory

Problem:

- Toxic hexavalent chromium
- High water and energy consumption
- Environmental and community pollution
- Financial penalties

Integrated Solutions:

- **Environmental:** Closed-loop water system, solar energy
- **Social:** Health programs, community transparency
- **Economic:** New business models, green financing

3. Expected Results

- Annual savings of 300 million DZD
- Improved community relations
- Elimination of fines

Lessons Learned:

1. Intellectual Transformation

From "managing problems" to "designing solutions"

2. Integration

Environmental, social, and economic aspects cannot be separated

3. Profitability

Sustainability is not a cost but a smart investment

4. Responsibility

The engineer is responsible for environmental and social impacts

Chapter Conclusion:

- **Session 1:** Worker protection
- **Session 2:** Risk measurement
- **Session 3:** Facility management
- **Session 4:** Waste management
- **Session 5:** Designing for the future

Final Message:

"The successful engineer designs not only for technical requirements but for a sustainable future"