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17.181 / 17.182 Sustainable Development: Theory and Policy
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Sustainable Development: Theory & Policy

Week 6 Economic Performance – Production & Consumption

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Contents

1. Economics & Sustainability

2. Approach to Knowledge Representation

- Industry & Manufacturing**
- Mobility & Transport**
- Trade & Finance**
- Agriculture & Rural Activities**



6.1 Economics & Sustainability

“Relocating Economic Activity
within the Society & the
Environment”



6.2 Knowledge Representation of Sustainable Development

Governance & Institution

Conflict & War

P □

P

Population
Consumption
Unmet Basic Needs
Migration
Urbanization

R □

R

Energy
Water
Land &
Forest Use

T □

T

Industry & Manufacturing
Trade & Finance
Mobility & Transport
Agriculture

Industry & Manufacturing

Activities & Conditions

Industry and Manufacturing

- Final Products
- Intermediary Products and Processes
- Supplier Systems and Networks
- Waste Related Industries

Sustainability Problems

Environmental Impacts

- Impacts on Land, Water, Air and Underground Spaces
- Specific Modes and Mediums of Pollution and Dislocations
- Threats to Life-Supporting Properties

Climate Change

- Greenhouse Gas Emissions
- CFC Impacts and Ozone Depletion
- Interactive Effects of GHG

Hazards and Wastes

- Solid and Non-Solid Wastes
- Safety, Health and Related Hazards

Socioeconomic Dislocations

- Economic Impacts
- Social and Political Impacts
- Consumption of Non-Renewable Resources

Scientific & Technological Solutions

Designing for Environment

- Industrial Ecology
- Life Cycle Analysis
- Industrial Metabolism
- Input-Output Mechanisms

Best Science and Technology Practices

- Substitution and Design Alternatives
- Cleaner Production
- Strategies Toward Wastes and Discharges
- Eco-Efficiency

Social Economic, Political & Regulatory Solutions

New Principals and Best Practices

- Polluter Pays Principle (PPP)
- Pollution Prevention
- Eco-Labeling
- Prior Informed Consent
- Separate But Different Responsibility
- Other Evolving Principles

Green Regulation and Legislation

- Formal Regulations
- Voluntary Restrictions and Regulations
- Informal Regulations

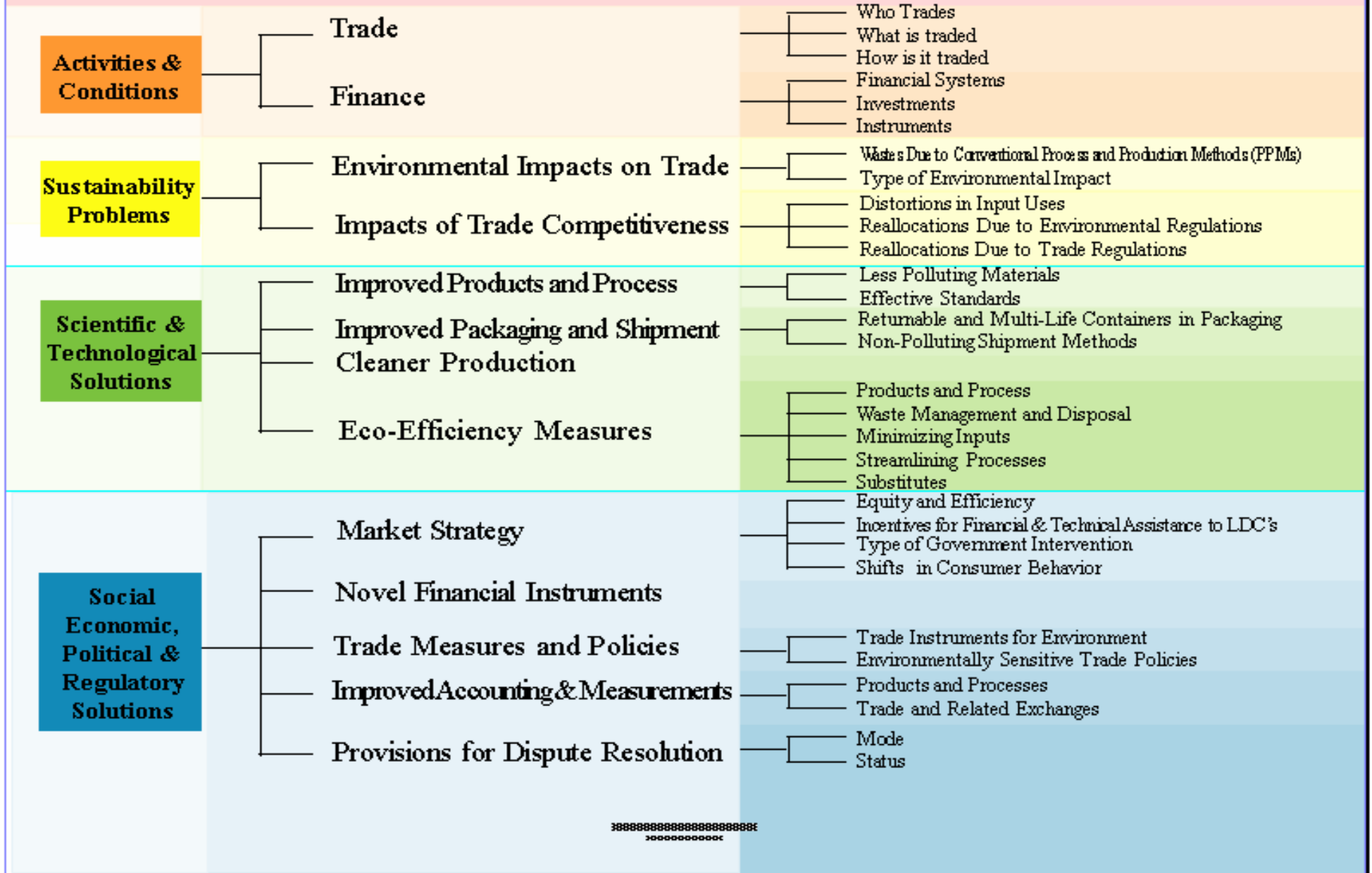
Market Strategies

- Incentives for Greening
- New Market Instruments

Full Cost Accounting

- Targeted to Activities and Agents
- Related to Requirements for Undertaking Full Cost Accounting

Trade & Finance



Agriculture

Activities & Conditions

Agriculture

- Agricultural Production
- Management of Supply and Demand

Sustainability Problems

Impacts of Chemicals and Pollutants

- Impacts on Land, Water and Air
- Damages Due to Irrigation Systems

Damage to Natural Systems

- Damming/Diversion of Rivers
- Wasting of Water via Evaporation
- Impacts of Production Choices

Socio-Economic Dislocations

- Ecological Dislocations
- Economic Impacts
- Social Impacts
- Hazards and Wastes
- Mismanagement and Misuses of Technology

Scientific & Technological Solutions

Improved Agricultural Practices

- Better Farm Machinery and Irrigation Systems
- Less Damaging Fertilizer Application Methods
- Improved Capital/Labor Balances
- Minimizing Use of Hazardous Chemicals
- Principles and Practices

Biotechnology Innovations and Use

- Improved Genetically Engineered Plants
- Improved Breed Productivity
- Advances in Tissue Culture

Social Economic, Political & Regulatory Solutions

Improved Markets and Mechanisms

- Effective Financial Instruments
- Improved Market Access and Performance
- Reliable Sources of Finance for Agriculture
- Market-Based Measures for Regulation

Government Oversight

- Provision of Resources
- Enforcing Standards in Inputs and Processes
- Monitoring of Stocks, Performance and Quality
- Innovation in Policies and Credit Facilities

Improved Socio-Economic Conditions

- Reduction/Termination of Debt
- Improved Income Distribution
- Better Working Conditions
- Enhanced Role of Women
- Improved Health and Sanitation Conditions

New Policy Responses

- Formal Intra and International Cooperation
- Informal Intra and International Activities
- Enhanced Institutional Collaboration
- New Policies and Principles
