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Developing Sustainability Criteria for Small and Medium Communities in China

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General Introduction of China

■ Location:

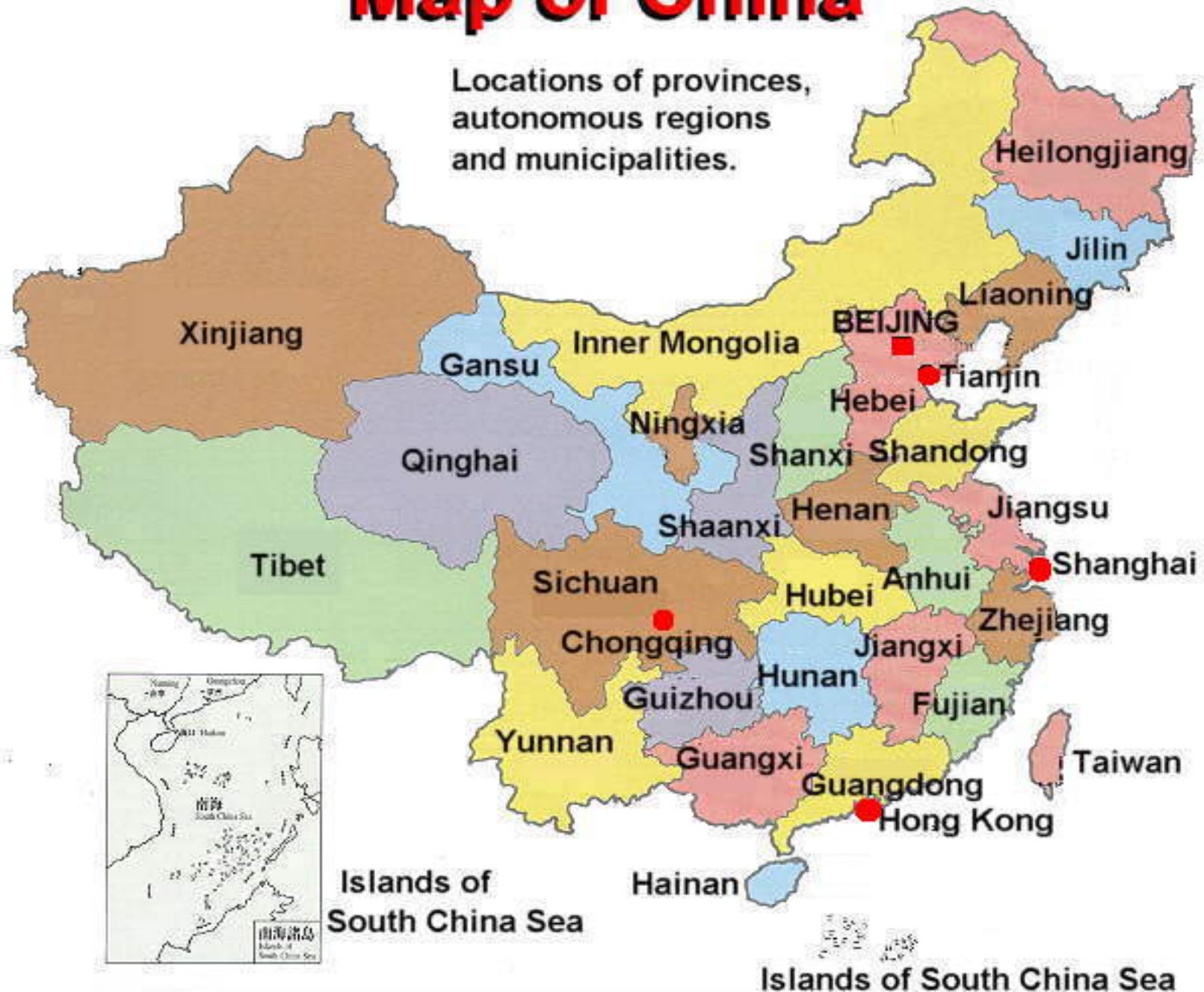
- ◆ Eastern Hemisphere
- ◆ Eastern Part of Asia
- ◆ Western Coast of the Pacific Ocean





Map of China

Locations of provinces,
autonomous regions
and municipalities.



Economic Growth (1997-2003)

Year	Economic Growth Rate
1997	8.8%
1998	7.8%
1999	7.1%
2000	8.0%
2001	7.3%
2002	8.0%
2003	9.1%

Other Indicators

- Population - 1.281 Billions (2002)
- GDP - US\$1,226 Billions (2002)
- GDP Per Capita - US\$957 (2002)
- FX Reserves - US\$403 Billions (2003)
- Trade in Goods (2003)
 - ◆ Total Exports - US\$438 Billions
 - ◆ Total Imports - US\$413 Billions
 - ◆ Exports to Canada - C\$19 Billions
 - ◆ Imports from Canada - C\$4.7 Billions

Project Background

- Rapid growth in the past 20 years led to environmental and ecological pressures
- Environmental Protection is one of the national primary/essential policies (1983).
- Emphasis on both Pollution Control and Ecological Conservation Strategies (1997).
- Promoting Sustainable Development (1996)
 - ◆ Cleaner Production Promotion Law (2003)
- Local EPB needs to set demonstration area of sustainable development (1998/1999)

What is Sustainable Development?

- Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

From: World Commission on Environment and Development, 1987

- “Build up the capital, live off the interest”

UN Indicators for Sustainable Development

- Commission on Sustainable Development (CSD) - 58 Indicators (1995)
 - ◆ Social (19)
 - ◆ Environmental (19)
 - ◆ Economic (14)
 - ◆ Institutional (6)

Canada's Environment and Sustainable Development Indicators (ESDI)

- The National Round Table on the Environment and the Economy (NRTEE) Initiative (2000)
- National-level Indicators and Info System
- To Sustain a Dynamic Economy and a Healthy Society and Environment
- To Consider Other Important Types of Capital such as the Environmental Assets

SD Related Policy Developments and Programs in Canada

■ Federal Level

- ◆ Office of the Commissioner of the Environment and Sustainable Development, 1995 *Auditor General Act*
- ◆ Sustainable Development Strategies for most of federal departments every three years (since 1998)

■ Provincial Level

- ◆ Manitoba: 11 sectoral sustainable development strategies to guide policy; Sustainable Development Act, 1998
- ◆ Alberta: Sustainable Development Coordinating Council (inter-ministerial)
- ◆ Quebec: Strategy for economic development based in part on sustainable development principles, 1998

Sustainable Communities in Canada

■ Urban Communities (80% population)

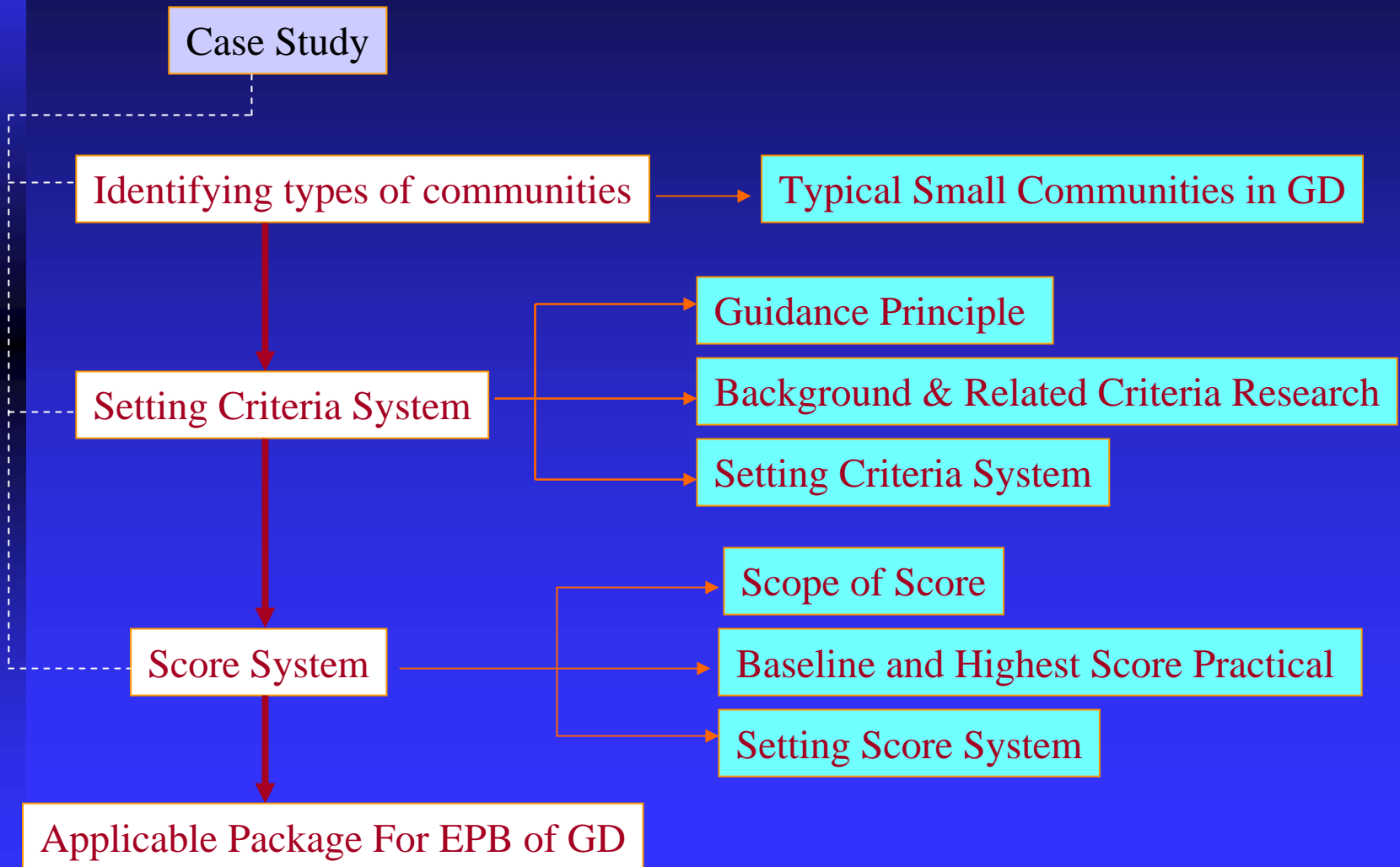
◆ Sustainable Initiatives

- ◆ Federal / Provincial / Municipal Level
- ◆ Funding to Promote SD Programs: GMF
- ◆ Practices in Different Aspects:
 - Transit, Health, Education, Waste Management, etc.

■ Rural Canada (Single Industry Communities)

- ◆ Cross-government, Cross-sector (agriculture, forestry, natural resources, etc.) process
- ◆ Canadian Rural Partnership (CRP), 1998
 - ◆ Coordinating government programs, policies and activities in support of rural communities

Working Procedure



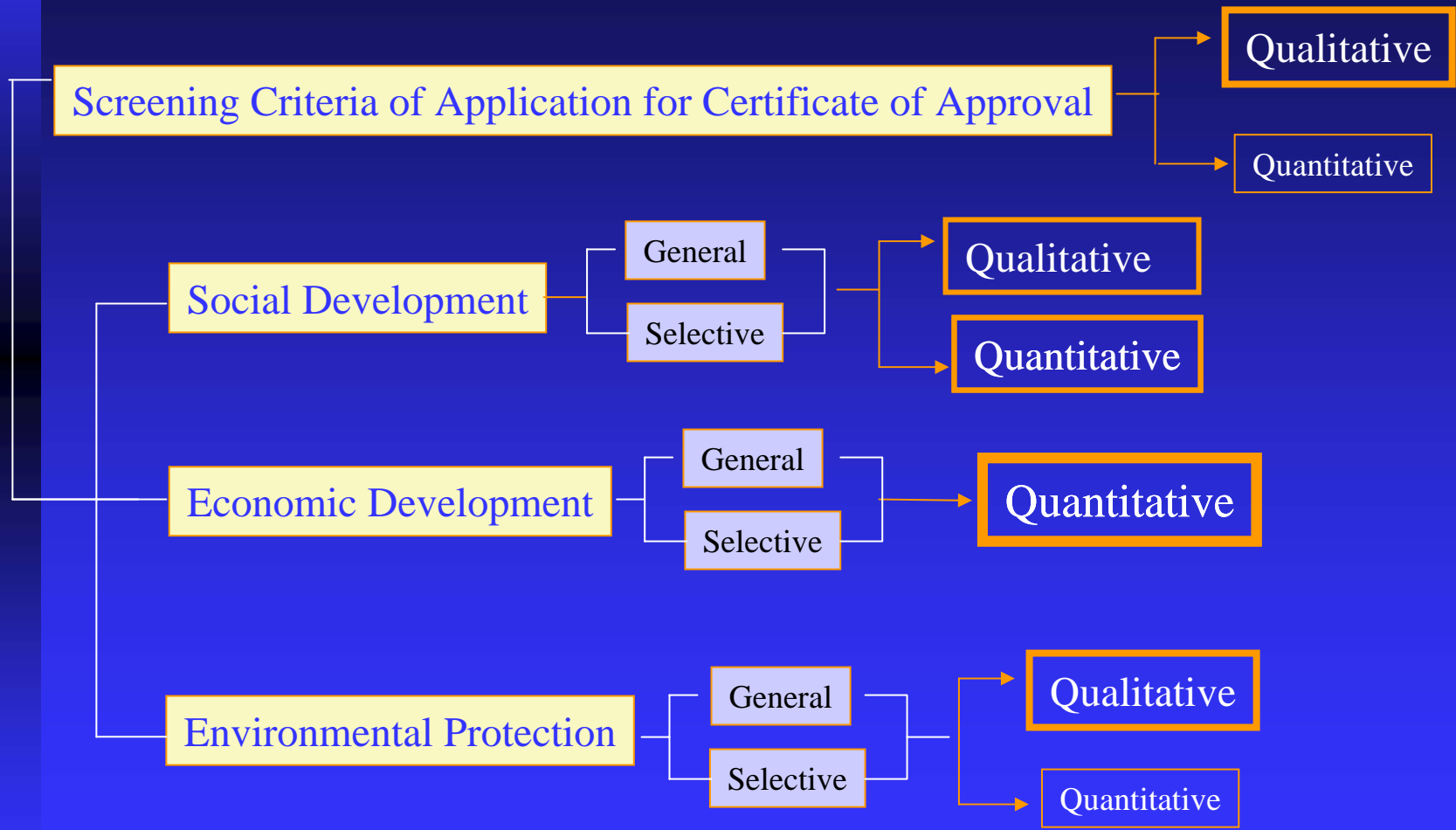
Types of Communities

- Traditional Agriculture Development Areas;
- Model Agriculture Demonstration Areas;
- Urbanized Rural Community;
- Concentrated Residential Areas;
- Concentrated Village and Town Industry Areas;
- Township

Guidance Principle of Setting Criteria System

- Scientific:
 - ◆ Ecosystem and Eco-balance theory.
 - ◆ Social, Economic, and Environmental Harmony theory.
- Comparable:
 - ◆ Fair to compare --- Comparable regions and comparable units.
- Operational:
 - ◆ Easy to collect the data --- Statistic GD and statistic data in different sectors; Continuous Monitoring Systems; Annual Reports.

Types of Criteria



Screening Criteria of Application for Certificate of Approval

- Completed Sustainable Development Plan
 - ◆ Implementation plan; Financing source
- Implementing Leadership, Public Awareness and Participation
 - ◆ Specific responsible leader team and broad public action
- Compliance with Related Environmental Protection Laws, Rules and Policies
 - ◆ No pollution and ecological damage events within past 3 years

Social Development Criteria

■ *General* Criteria

- ◆ Rationality of city (region) layout
- ◆ Compliance with national population policy (%)
- ◆ 9-year compulsory education coverage (%)

■ Selective Criteria

- ◆ Average life expectancy
- ◆ Number of hospital beds per 10,000 people

Economic Development Criteria

■ General Criteria

- ◆ GDP per capita
- ◆ Average income per capita

■ Selective Criteria

- ◆ Water consumption every unit GDP
- ◆ Energy consumption every unit GDP

Environmental Protection Criteria (1)

■ General Criteria:

- ◆ Vegetation coverage (%)
- ◆ Clean drinking water supply (100%)
- ◆ Surface water quality
- ◆ Ambient air quality
- ◆ Sound environmental quality
- ◆ 3R of solid waste (%)
- ◆ Clean energy (gas/electricity) (%)
- ◆ Renewable energy (methane/solar/wind) (%)

Environmental Protection Criteria (2)

■ Selective Criteria

◆ Sustainable Agriculture

- ◆ Chemical fertilizer application (kg/ha)
- ◆ Organic Fertilizer application (kg/ha)
- ◆ Chemical pesticides application (kg/ha)
- ◆ Biological control of plant disease and insect pest (%)
- ◆ Stability of Agri-Ecosystem
- ◆ Water efficient irrigation system
- ◆ Area of none contaminated production
- ◆ Ecological agriculture model

Environmental Protection Criteria (3)

■ Selective Criteria

◆ Sustainable Industry

- ◆ Cleaner production verification
- ◆ Water intensity
- ◆ Energy intensity
- ◆ Meet national and local pollutant release standards.
- ◆ 3R of industrial solid waste
- ◆ Reuse of industrial wastewater

Environmental Protection Criteria (4)

■ Selective Criteria

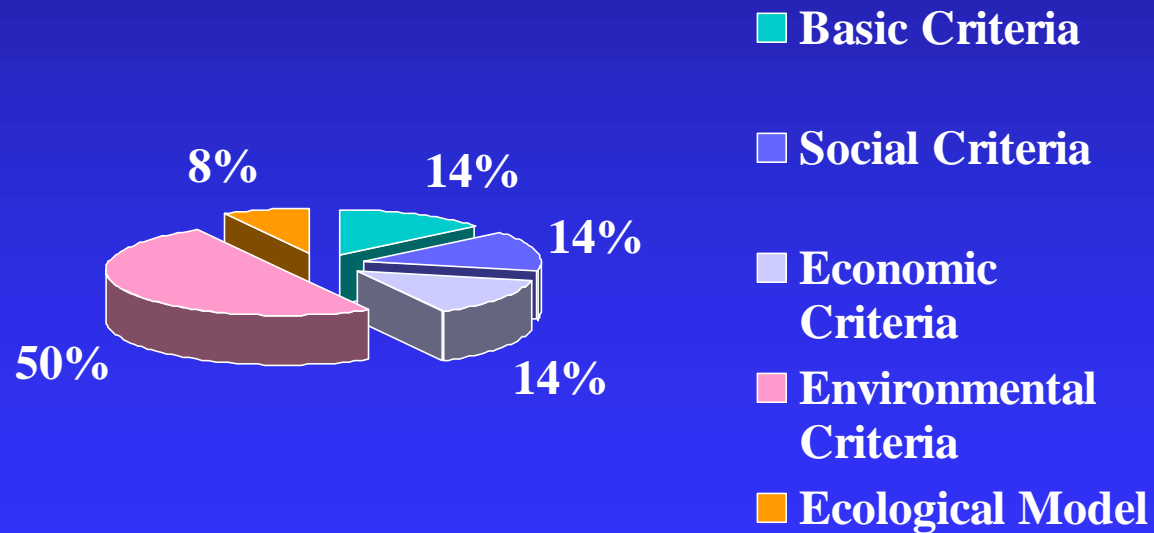
◆ Sustainable Residential Area

- ◆ “Green” construction materials
- ◆ Energy efficient construction design
- ◆ Installation of water/energy efficient appliances

Criteria Score System (1)

■ Score scope

◆ 60 to 100 marks



Criteria Score System (2)

- Baseline and Highest Score Practical
 - ◆ Economic Criteria
 - ◆ Regional average and highest level
 - ◆ Social Criteria
 - ◆ Objective in regional five-year development plan
 - ◆ Regional average and highest level
 - ◆ Requirement in governmental policy

Criteria Score System (3)

- **Baseline and Highest Score Practical**
 - ◆ **Environmental Criteria**
 - ◆ **State Environmental Quality Standards and Pollutants Release Standards**
 - ◆ **Sector Standards**
 - ◆ **Results of scientific research**
 - ◆ **Regional average and highest level**
 - ◆ **Ideal scenario**

Sustainable Model (1)

■ Ecological Agriculture Model:

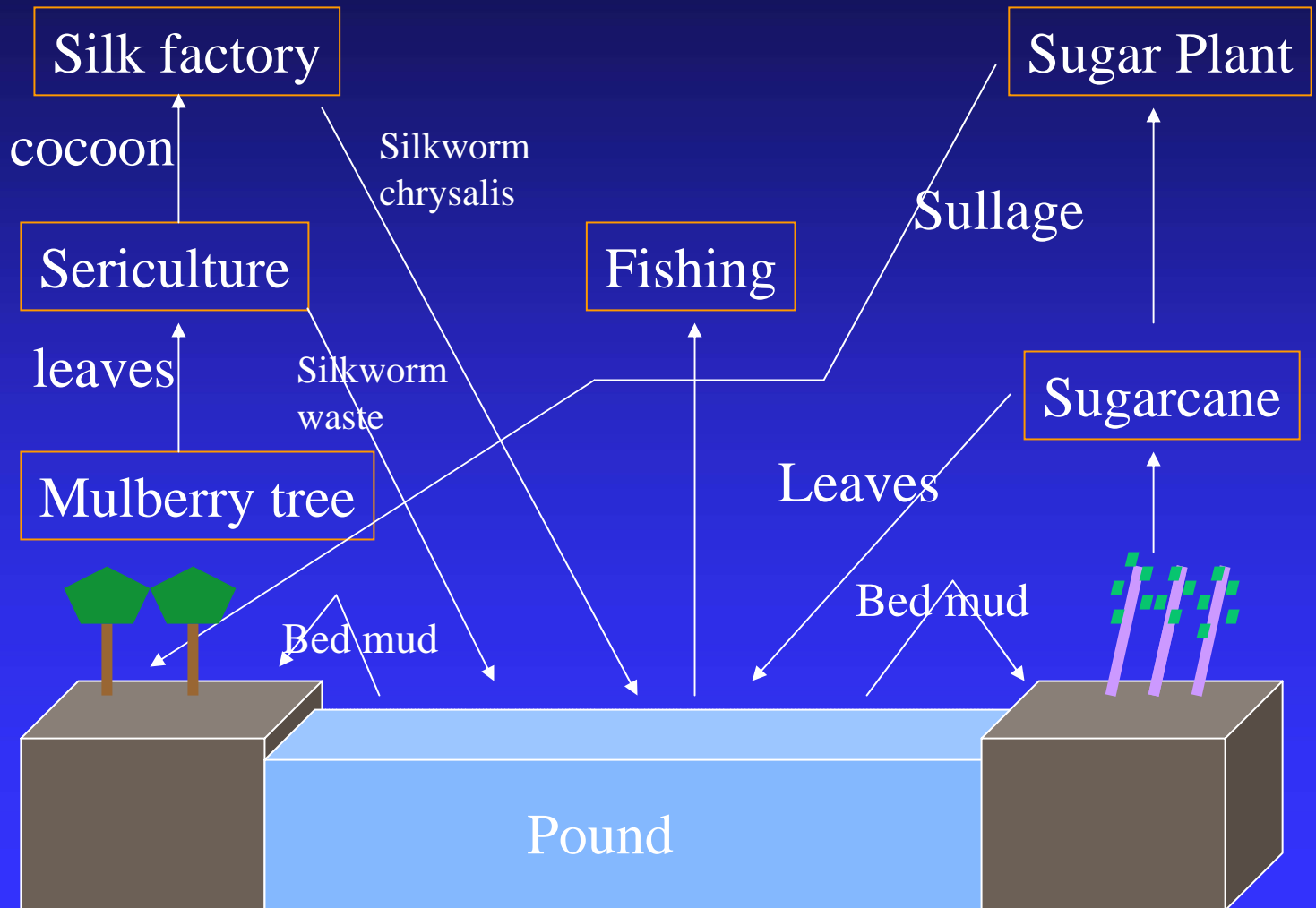
- ◆ Aquatic-territory material cycle ecosystem
- ◆ Three dimensional energy-material utilizing ecosystem
- ◆ Wastewater self-purification engineering ecosystem
(Cultivation/methane/fishing/planting)
- ◆

Sustainable Model (2)

■ Ecological Industry Model

- ◆ Chinese Version of Industrial P2?
- ◆ According to the theory of material cycle and energy flow in ecosystem, a new type of ecological industry network is expected to build by combining waste material and waste heat of one facility with the raw material and energy source of another facility to save natural resource, increase energy efficiency and prevent pollution.
- ◆ Promote cleaner production and whole process control of pollutant.

Typical Mulberry/Sugarcane-Fishing Pond System in Pearl River Delta in GD Province



Current Status of the Criteria System

- Being implemented by the Guangdong Provincial Government
- Over 50 communities (townships, villages, etc.) awarded the title of “Sustainable Community”
- Self-reviewed and externally reviewed periodically

The End

Thank You!