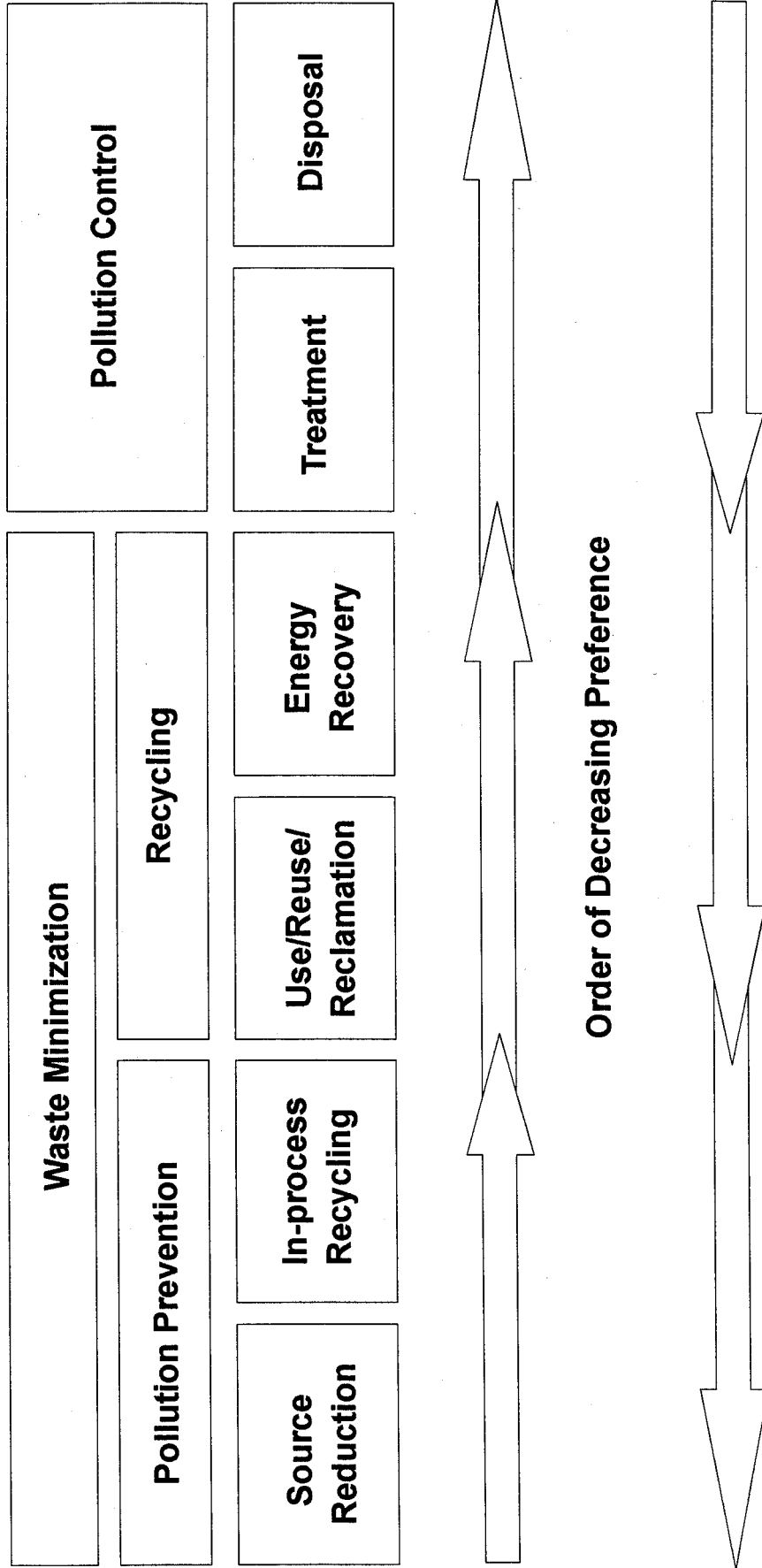


Pollution Prevention Opportunities in the Carpet, Apparel and Textile Industry

**Pollution Prevention Assistance Division
Georgia Department of Natural Resources**

Waste Management Hierarchy



Order of Decreasing Preference

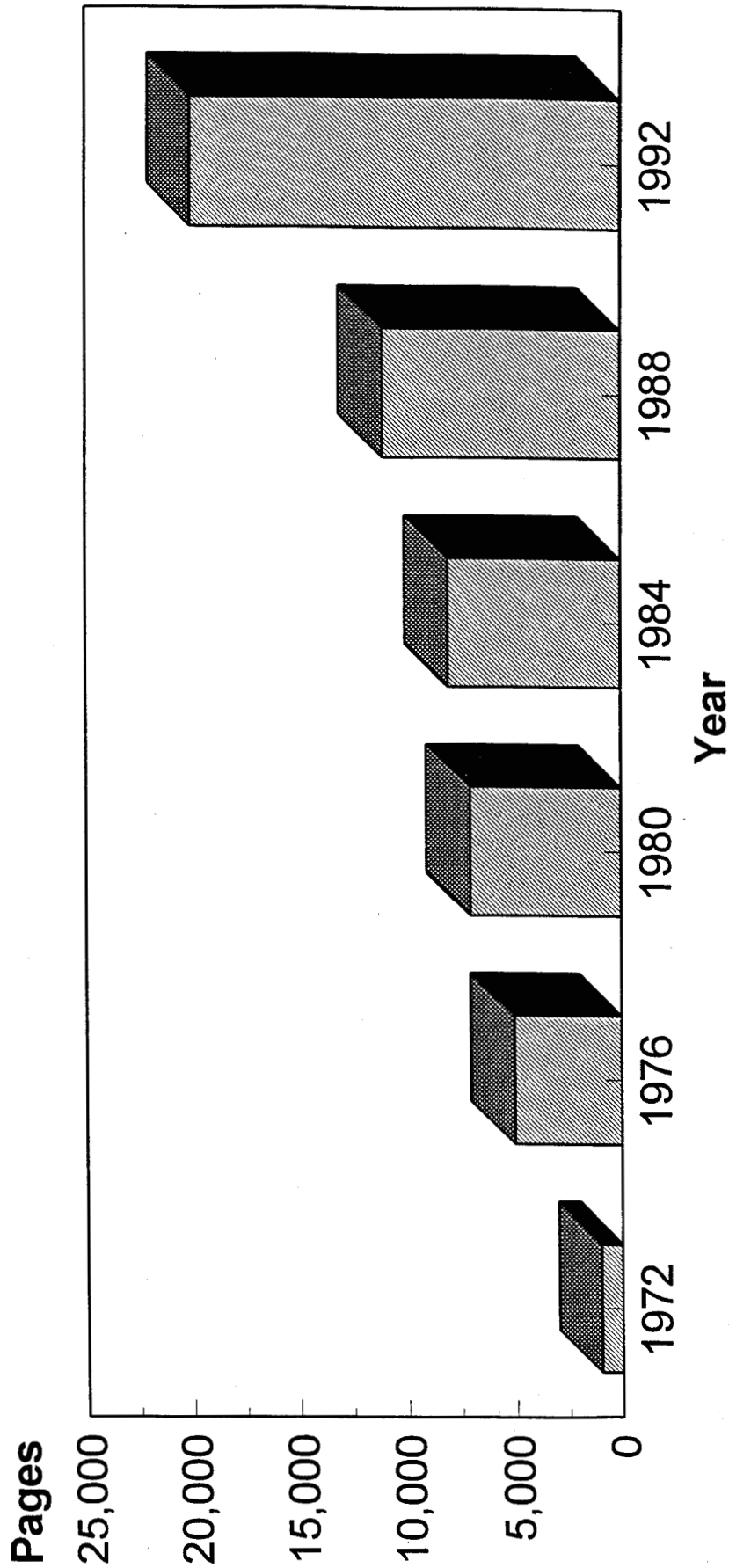
Order of Decreasing Liability

Pollution Prevention Activities

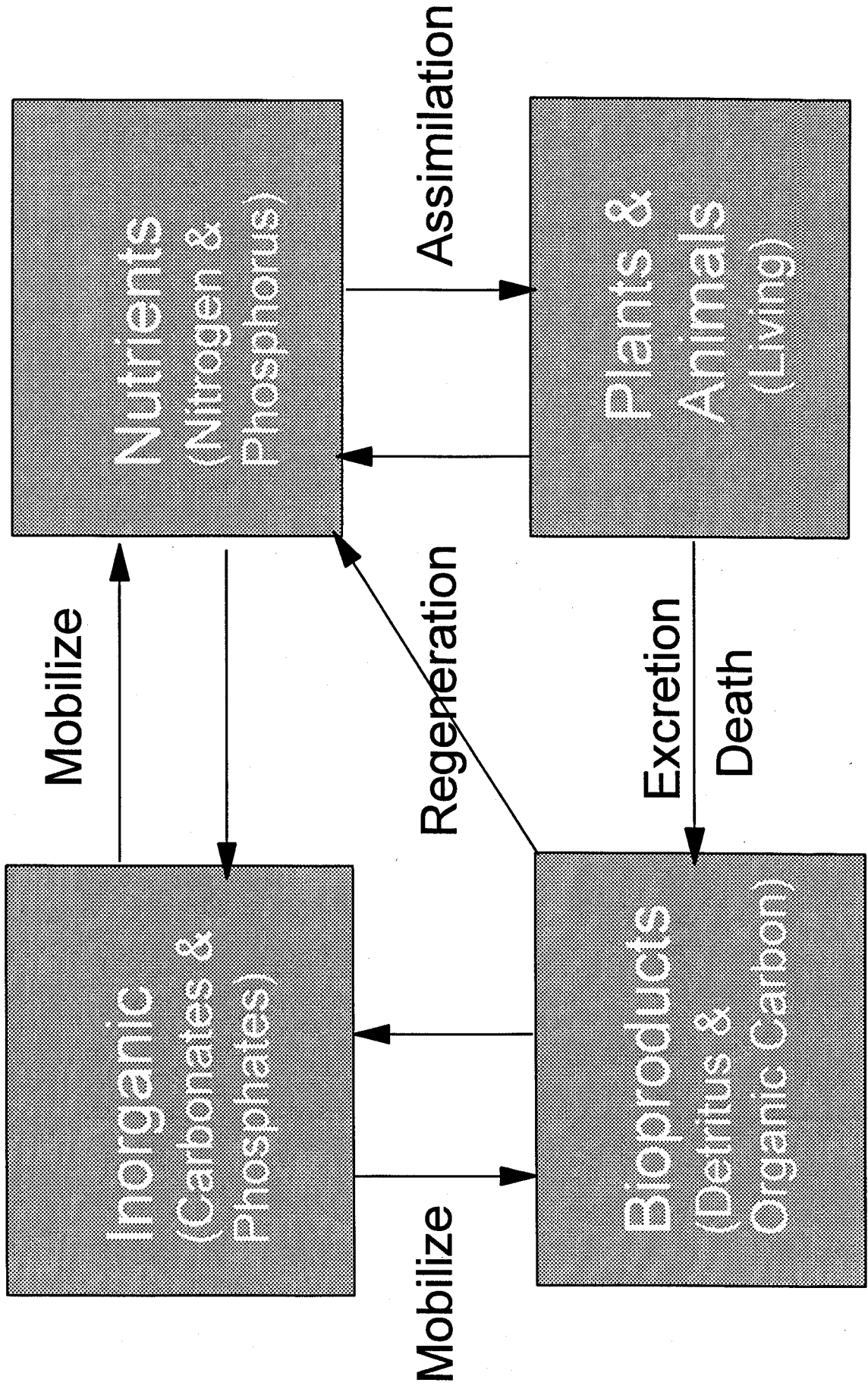
- ▶ Product reformulation
- ▶ Process modification
- ▶ In-process recycling
- ▶ Inventory management
- ▶ Raw material substitution
- ▶ Source segregation of wastes
- ▶ Good housekeeping
- ▶ Employee training

Why Pollution Prevention??

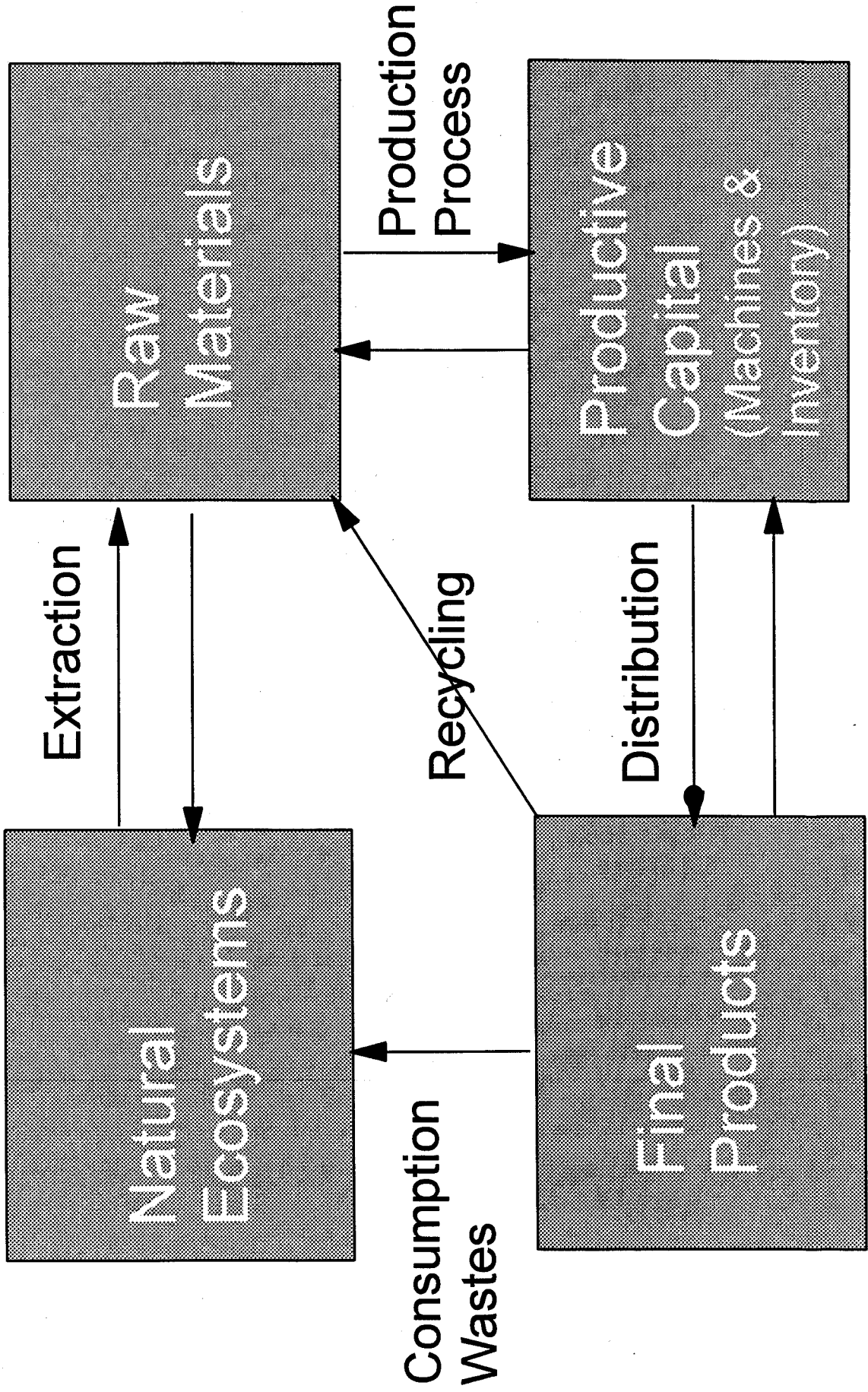
Growth in Federal Environmental Regulations
Title 40 Code of Federal Regulations



Natural Ecosystems



Industrial Ecosystems



Main Parts of the Manufacturing Operation

- ▶ **Prior to the Manufacturing Process**
- ▶ **Manufacturing Process**
- ▶ **After the Manufacturing Process**

Pollution Prevention Opportunities Prior to the Manufacturing Process

- ▶ Work with suppliers to minimize packaging
- ▶ Obtain raw material in bulk
- ▶ Prescreen raw materials upon receipt
- ▶ Monitor incoming city water
- ▶ Develop an inventory management system
- ▶ Seek environmentally compatible raw materials

Pollution Prevention Opportunities During the Manufacturing Process

- ▶ **Conservation and Optimization of Chemical Use**
 - Production Scheduling
 - Automation of dispensing equipment
- ▶ **Chemical and Raw Material Substitution**
 - Alternate bleaching agents
 - Different dyes
 - Auxiliary chemical substitution
- ▶ **Process and Equipment Modification**
 - Water conservation (counter-current washing)
 - Dyebath reuse
 - Heat and energy reuse
- ▶ **Improved Housekeeping**
- ▶ **Segregate Wastes**

Waste Reduction Opportunities After the Manufacturing Process

- ▶ Recycling of product within the plant
 - Metal recovery
 - Caustic chemical recovery
 - Salt recovery (nanofiltration)
- ▶ Seek Outside Recycling Markets
 - Waste Exchanges
- ▶ By-Product Reuse
 - By-products incorporated into building products

Elements of Successful Pollution Prevention Programs

- Management commitment
- Set goals
- Involve employees
- Train employees
- Conduct assessments
- Account for waste costs
- Implement plan
- Monitor progress
- Technology transfer

Where Can I Get Help?

- ▶ **Vendors**
- ▶ **Trade Associations**
- ▶ **Consultants**
- ▶ **Universities**
- ▶ **Technical Assistance Organizations**

Pollution Prevention Assistance Division



Georgia Department of Natural Resources

P²AD Pollution Prevention Assistance Division
Georgia Department of Natural Resources

Jancie S. Hatcher
Information Manager

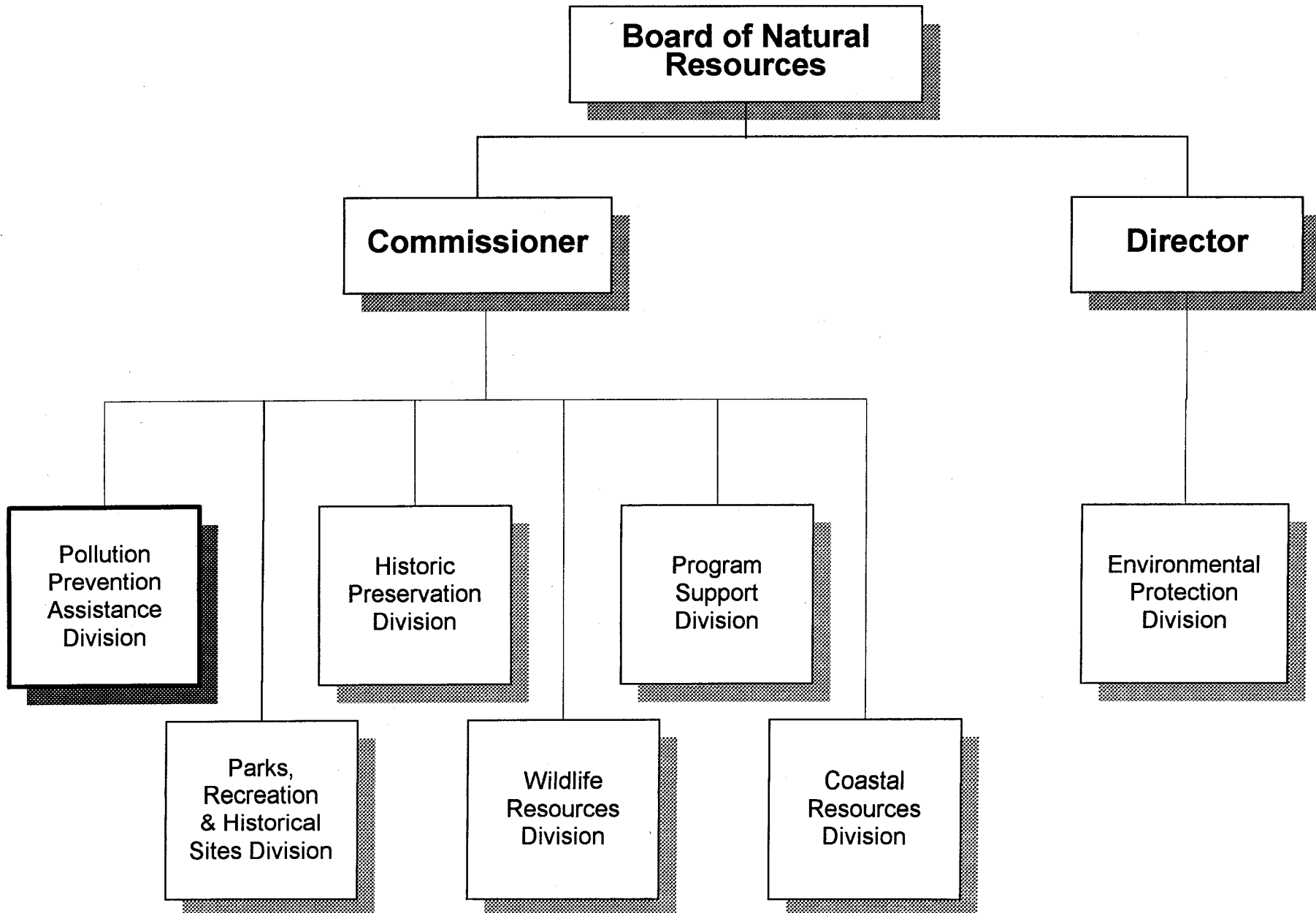
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