Co-Management and Collective Mechanisms for Environmental Management

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Institutional Frameworks for Environmental Management

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Major Messages

- Beyond organizations to institutions
- Beyond policies to institutions
- Beyond public and private goods to . . .
- Beyond the state and the market to . . .
- Beyond the public and private sectors to . . .
- Beyond centralization to decentralization
- Beyond technology to institutions
- Beyond substance to process

"What precisely is the relationship between Buenos Aires and Virginia?"

Beyond Organizations to Institutions

- While organizations are one type of institution, the basic concept of institutions is more fundamental.
- Institutions are the "rules of the game", which prohibit, permit, or require certain actions.
  - Socially devised, recognized, and generally followed by members of a community, and which therefore impose constraints on the actions of individuals members of the community.
  - Either formally written down and enforced (among others) by government officials, or unwritten and informally sanctioned.
  - Predictable, essentially stable, and applicable in repeated situations.

Examples

- Macro-level institutions
  - Affect behavior **throughout the economy**
  - E.g. General environmental protection law, or environmental code
  - E.g. Treaties and other international agreements
- Micro-level institutions
  - Affect behavior **in a part of the economy**
  - E.g. Legislation and regulations with respect to the protection of certain natural resources
  - E.g. Administrative provisions and technical standards in relation to urban pollution management

Beyond Policies to Institutions

- A **policy framework** establishes a **strategic direction** for policy makers and managers:
  - Vision
  - Guiding principles
  - Strategies
- Even **policy interventions,** that are intended to affect the economic behavior of people on a day-to-day basis, must be undergirded by **institutions** in order to have an impact on people's behavior:
  - Permits and licenses
  - Effluent fees and taxes
  - Emissions trading
  - Penalties

Why institutions are important

- They are necessary in order to coordinate human activity.
- They create incentives for people to behave in certain ways.
- Some of which are **beneficial** to society as a whole:
  - Production and exchange
  - Accumulation of physical and human capital
  - Development of improved technologies
- And others of which are **harmful**:
  - Opportunistic behavior
  - Rent-seeking

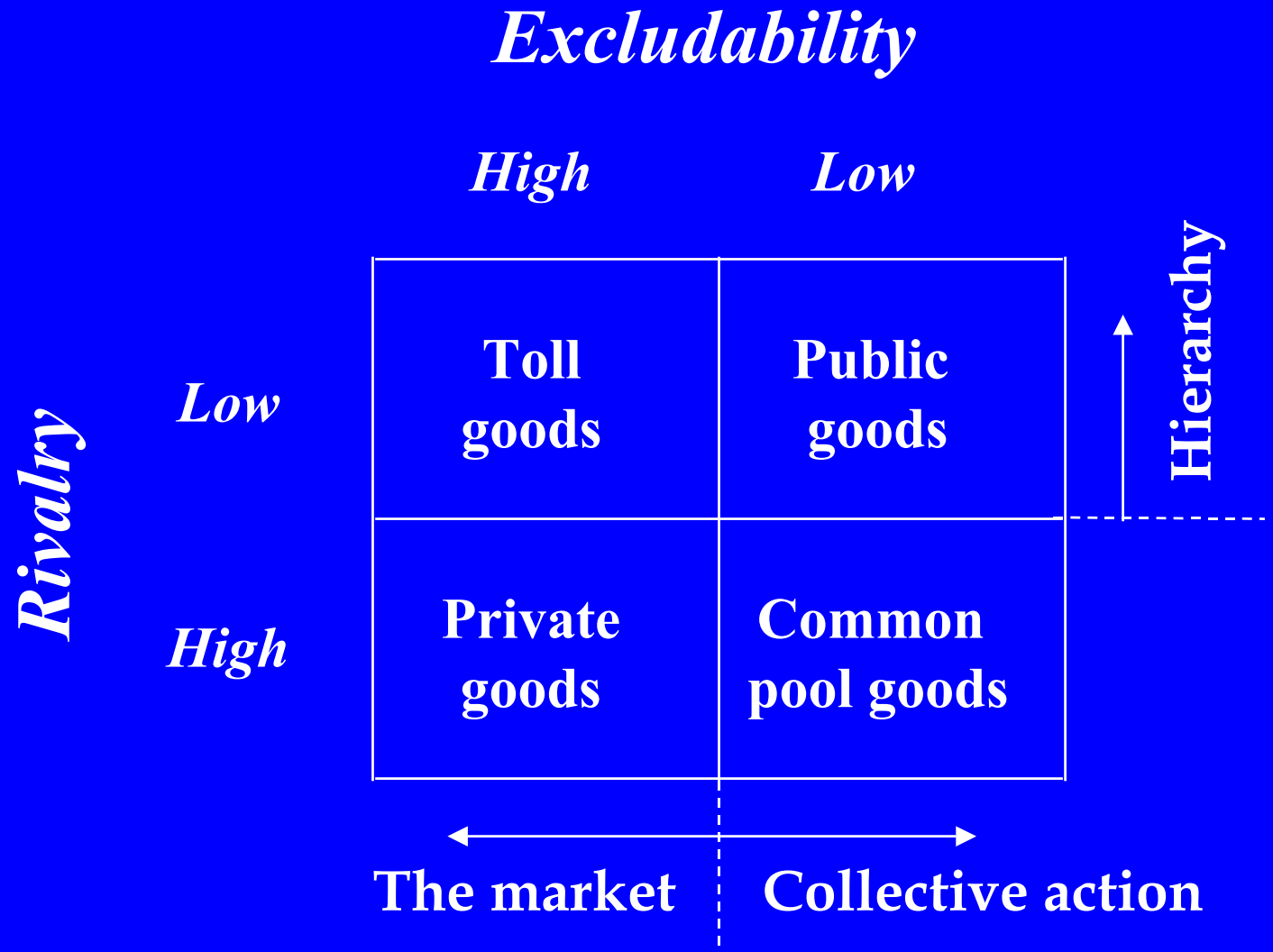
Beyond Public and Private Goods

Rivalry \ *Excludability*	*High*	*Low*
Low	**Toll goods**	**Public goods**
High	**Private goods**	**Common pool goods**

Two basic characteristics of all goods and services

- **Excludability:**
  - The ability of suppliers of a good or service to exclude from consumption those who are not willing to pay for the good or service.
  - High excludability makes markets possible.
  - Low excludability makes markets difficult, because of free-rider problems.
- **Rivalry:**
  - The extent to which one person's use or consumption of a good or service reduces its availability to other people.
  - High rivalry implies individual consumption
  - Low rivalry permits joint consumption.

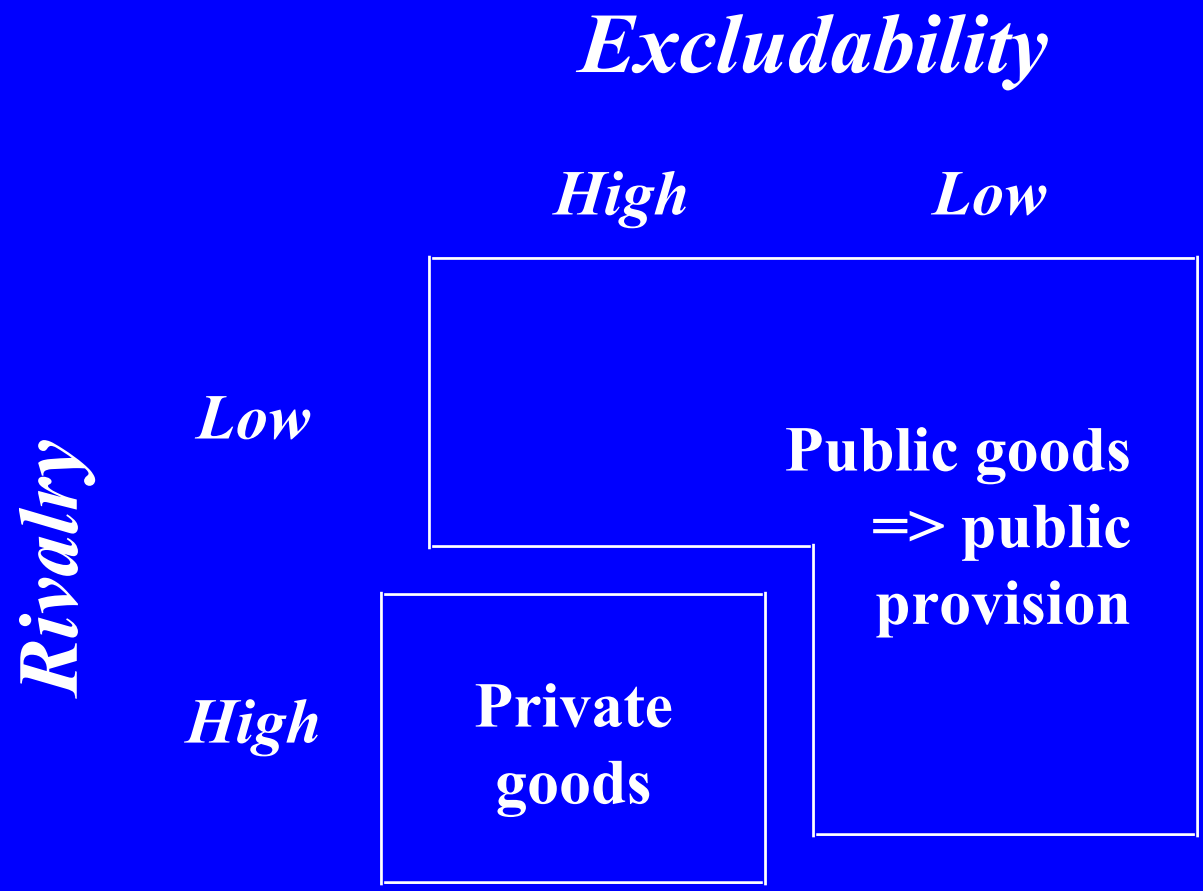
Beyond the State and the Market



Coordination mechanisms

- **Markets:**
  - Coordination by exchange
  - Voluntary, **one-on-one** exchange between two parties
- **Hierarchies:**
  - Coordination by command and control
  - Authority flowing, **one on many**, from the top to the bottom of successive levels of hierarchy
- **Collective action:**
  - Coordination by common interest
  - A group of people, **many on many**, acting together in pursuit of a common interest

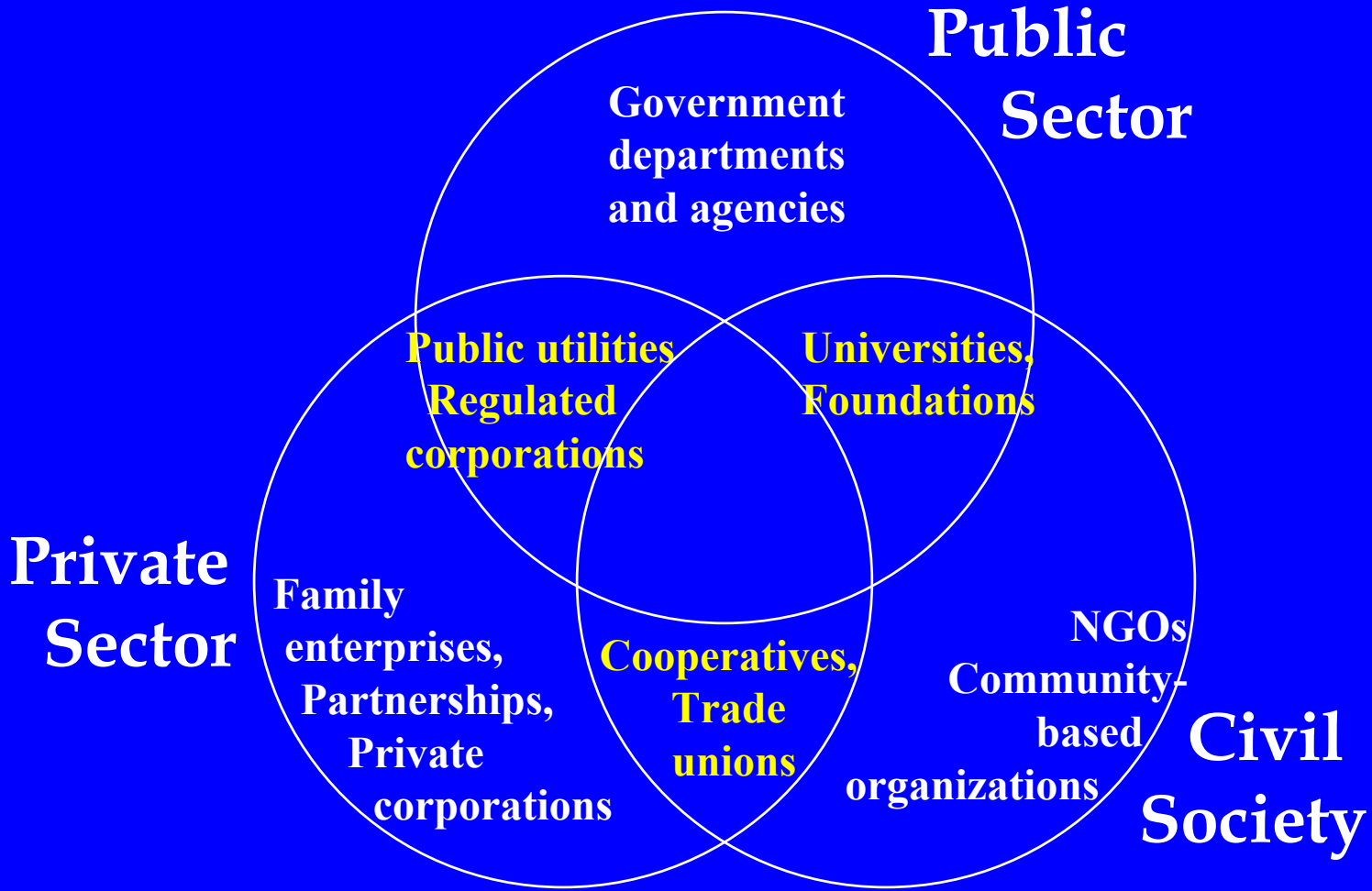
How we used to view the world



Environmental management

- "Command and control"
  - Hierarchical mechanisms
  - Permits, licenses, penalties
- "Economic incentives"
  - Market-based mechanisms
  - Effluent fees => toll goods
  - Emissions trading => private goods

Beyond the Public and Private Sectors



Organizations

- Comprise varying degrees of market-orientation, hierarchy, and collective action.
- In some cases, one mechanism is dominant.
  - (Commercial) private sector: Market-orientation
  - Public sector: Hierarchy
  - Civil society: Collective action
- In other cases, organizations are hybrids:
  - Public corporations and private hierarchies: e.g. public utilities, large firms
  - Public collectivities: e.g. universities
  - Market-oriented collectivities: e.g. cooperatives

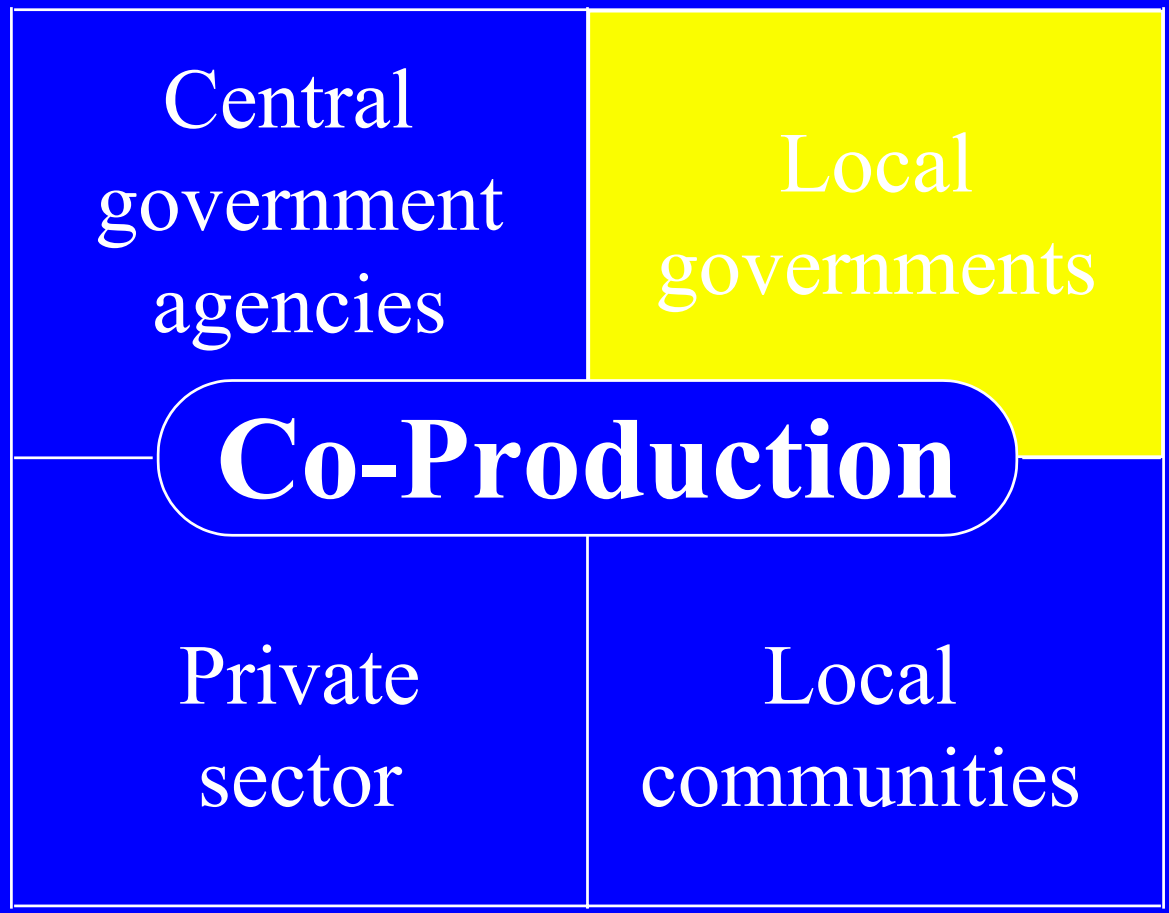
Co-Production (or Co-Management)

- The joint production (or management) of a particular good (or resource) by two or more different types of organizations, such as a central government agency and a local community-based organization
- In order to take advantage of :
  - Relative strengths, and
  - Synergies among different organizations.
- Such as:
  - Economies of scale, on the one hand, and
  - The importance of local time and place information, on the other.

Examples

- Roads and footpaths
- Water supply and sanitation
- Irrigation and drainage
- Natural resource management
- Agricultural extension
- Basic health services
- Basic education
- Security

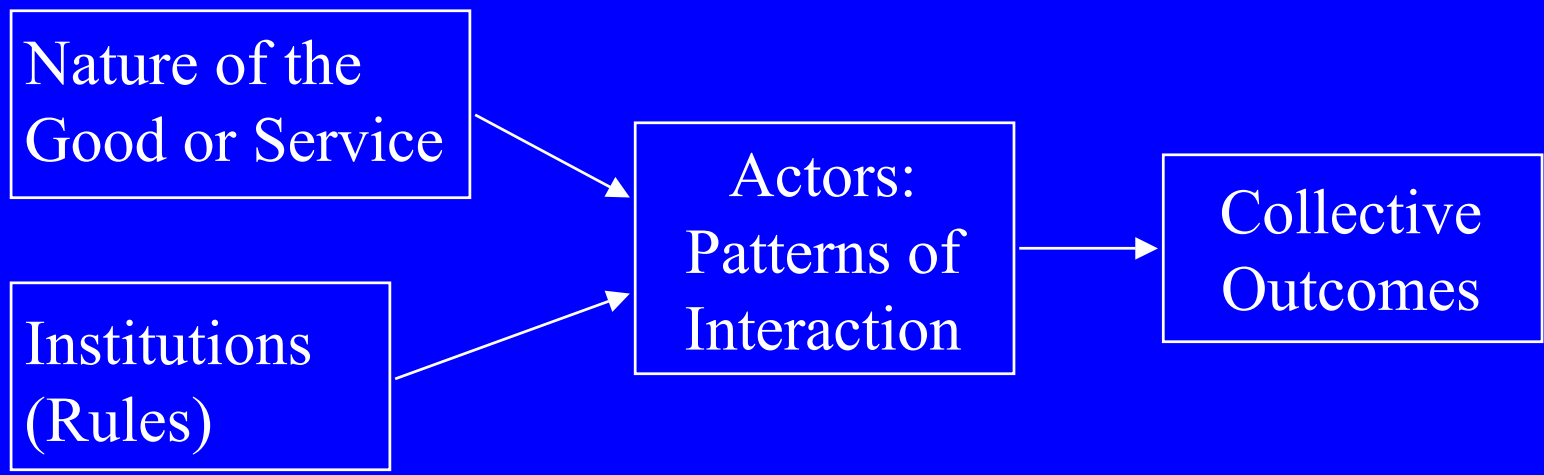
Beyond Centralization to Decentralization



Decentralization

- The transfer of authority and responsibility for various government functions from higher to lower levels of government, as well as to communities and the private sector.
  - **Local governments** in the driver's seat,
  - In collaboration with **local communities,**
  - Supported by **central government agencies**, and
  - Contracting certain activities to the **commercial private sector**

Beyond Technology to Institutions: Institutional Analysis and Design



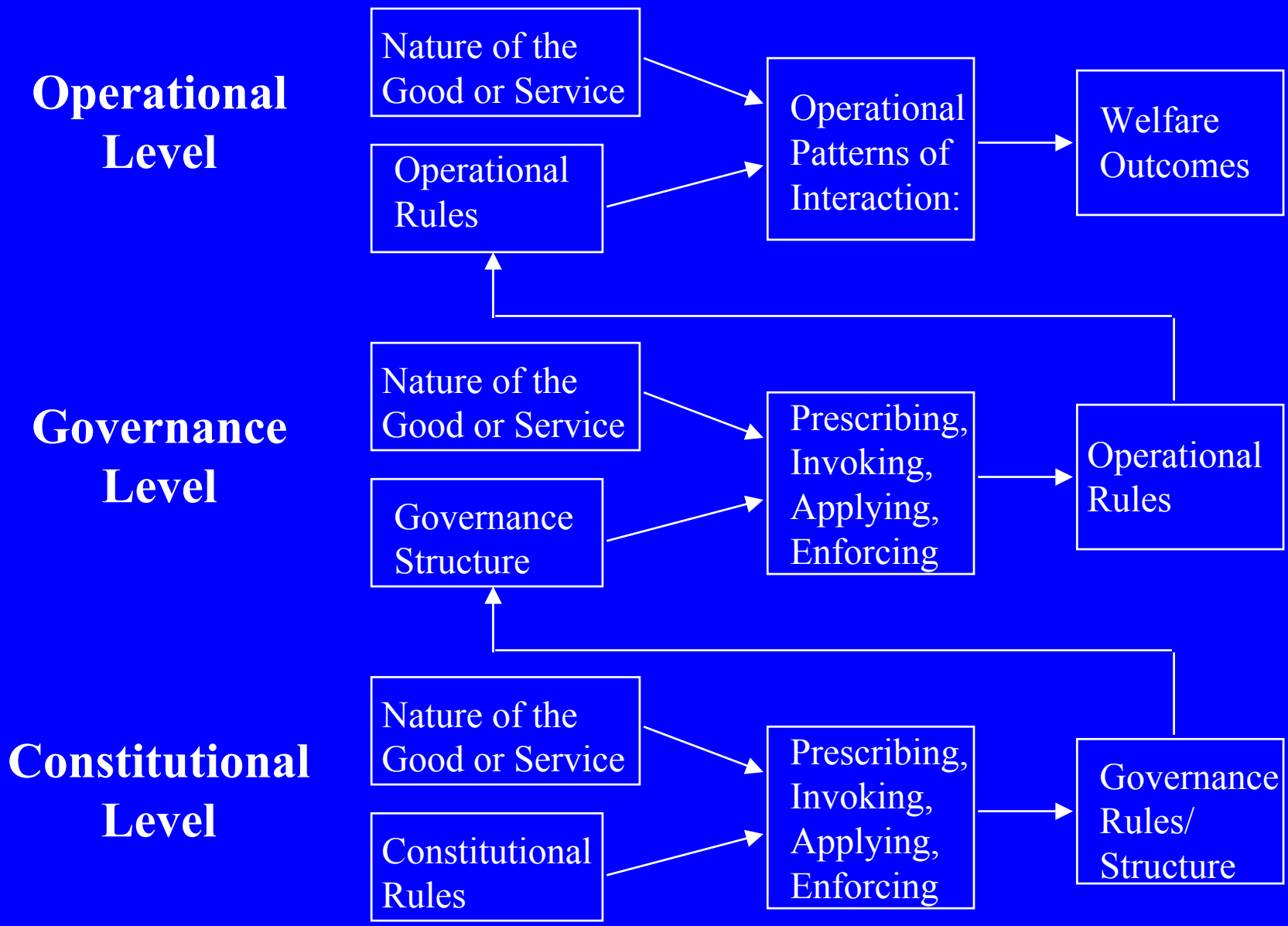
Institutional analysis and design

- A normative and prescriptive analysis of the patterns of interaction among a group of human beings in a given arena of human activity,
- Which attempts to explain the observable outcomes of these patterns of interaction in terms of:
  1. The motivations of individual actors,
  2. The nature of the good or service in question, and
  3. The rules of the game (including cultural norms) which constrain human activity in this particular action arena.

Beyond Substance to Process

- Substance:
  - Relates to the operational level of analysis
  - Concerned with analyzing how existing institutions (rules) influence the provision of goods and services in an economy in terms of criteria such as efficiency and sustainability
- Process:
  - Relates to the governance and constitutional levels of analysis
  - Concerned with how self-governing societies, or self-governing groups within society, go about changing the rules in order to improve the provision of goods and services.
  - To be effective, new rules must be not only prescribed, but also invoked, applied, and enforced.

Levels of institutional analysis



Challenges of Institutional Reform

1. Problem recognition
2. Collective action problems
3. Transactions costs
4. Path-dependency
5. No blueprints

Guiding Principles for Reform

1. Political commitment and cover
2. Reform strategy
3. Reform manager
4. Participation of stakeholders
5. Sequencing

Summary So Far

- The choice of a mechanism -- markets, hierarchies, or collective action -- and organizations to coordinate the provision of a good or service depends upon the nature of the good or service in question
- The effectiveness of any one of these mechanisms, as well as decentralization and co-production, also depends on having good institutions.
- Institutions are the “rules of the game” which govern the patterns of interaction among the different actors in a given action arena, both between and within organizations

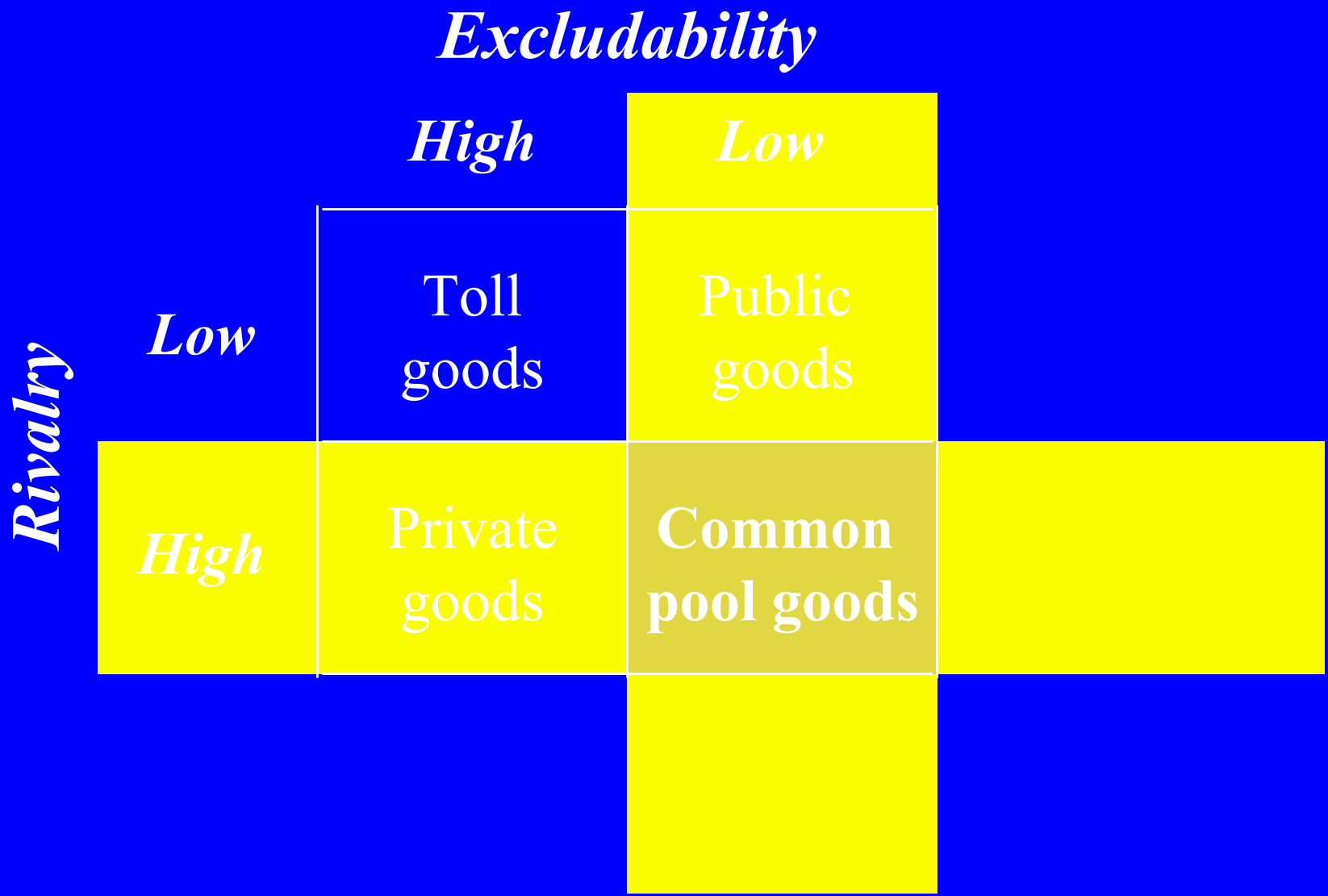
Summary So Far (cont.)

- In order to improve the performance (or outcomes) of any institutional system, it is necessary either:
  - To change human nature;
  - To change the nature of the good or service in question (e.g. by means of research and technology); or
  - To change the "rules of the game".
- While not trivial, changing the rules of the game is the easiest of the three alternatives.
- There are no blueprints, only design principles.

Environmental Services

- The ecological functions of the environment in assimilating or absorbing human wastes and other pollutants
- Examples:
  - Atmosphere: Air-borne pollutants
  - Water systems: Organic and inorganic wastes
  - Forests: Carbon sinks, air filtering, watershed stability, biodiversity

Common pool goods



Common pool goods

- **High rivalry**: Beyond the capacity of the environment to assimilate human wastes and other pollutants without human assistance

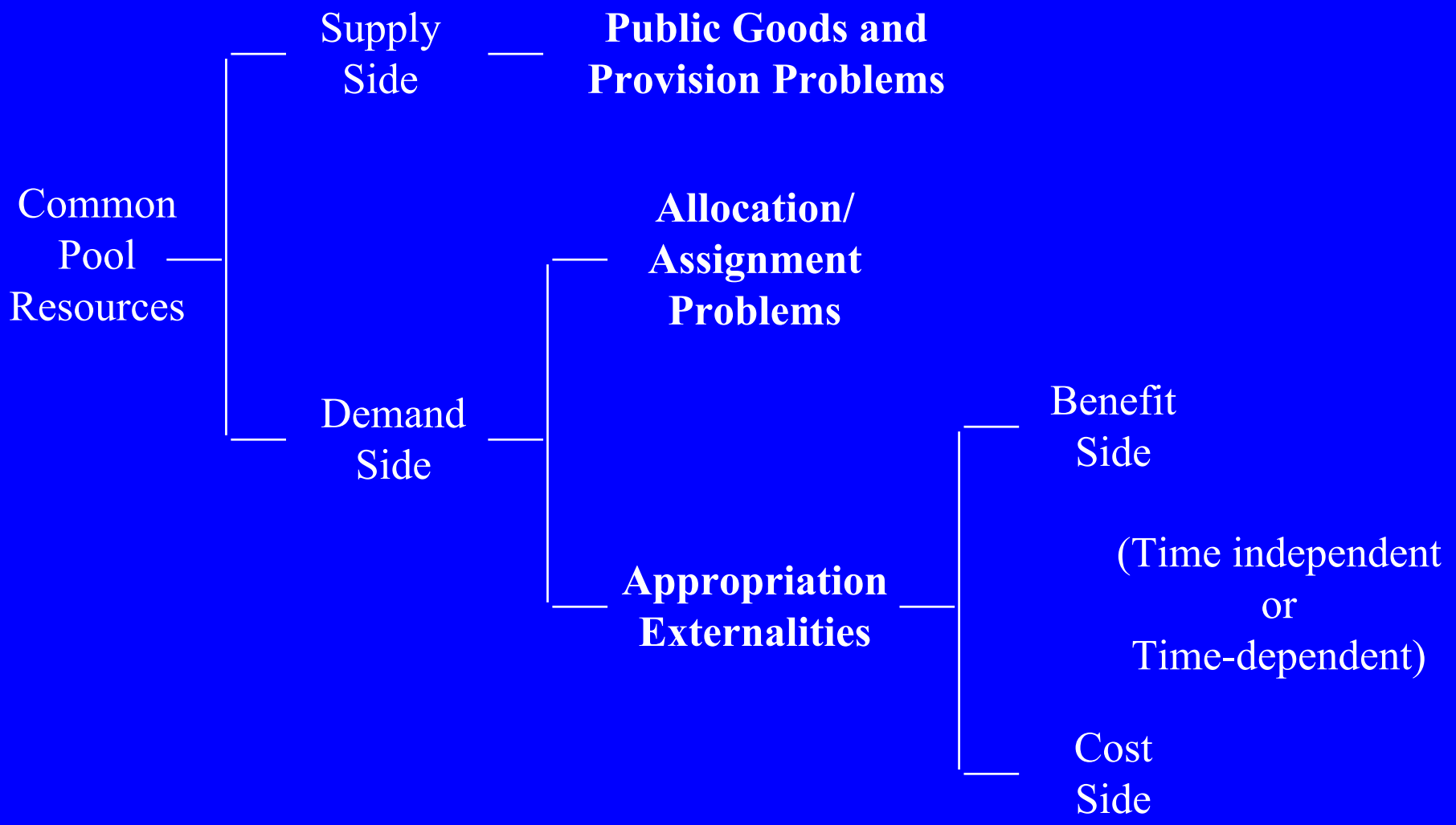
  => appropriation externalities

- **Low excludability:** Difficult to control access to global commons like air and water

  => allocation/assignment problems

- **Provision problems:** Concerning collective investments to enhance the assimilative capacity of the environment.
- **Interconnectedness:** Local resources are part of a larger ecosystem, which makes overall management more difficult.

Collective action problems



Existing collective action

- Environmental advocacy groups
- The political, public policy-making process
- Community-based natural resource management (CBNRM)
- Pollution management ? ? ?

CBNRM

- Land, soils -- arable, pasture, and rangeland
- Water -- surface and groundwater
- Domesticated animals
- Forests
- Wildlife
- Marine resources, fisheries
- Watersheds, wetlands, coastal areas
- Protected areas

One of four generic alternatives:

- **Public sector management**
  - State institutions, -- usually ministries, departments, or agencies of the bureaucracy -- make and enforce decisions about resource use
- **Private sector management**
  - Private individuals or companies with ownership rights make decisions about resource use within whatever limits are set by (state) law
- **Local community-based management**
  - Community institutions with *de jure* or *de facto* ownership rights determine and administer access and use
- **Open access**
  - No one has *de facto* ownership of the resources
  - Anyone can harvest the resources without threat of legal sanctions

International Workshop on CBNRM

- Washington, D.C., May 1998
- To learn more about how to institutionalize CBNRM:
  - Problem diagnosis
  - Key institutional reform strategies
  - Key areas requiring action
  - Sequence
  - Key actors

Basic Problem

- Traditional common property management regimes are breaking down into open access regimes, due to:
  - Pressure on existing resources arising from economic "modernization" and rapid population growth,
  - Incursions by non-local interests: (e.g. national parks, hydro-electric dams, large-scale mechanized farming, cement plants), and
  - Failed attempts of centralized management
- Local communities, who are trying to organize themselves to deal with these threats, are running up against constraints beyond their power to control

Two others factors affecting the difficulty of institutionalizing CBNRM

- **Nature of the resource:**
  - Whether known and predictable, or
  - Not well-known and unpredictable.
- **Nature of the user-managers:**
  - Whether an identifiable, coherent group, or
  - Lacking group identity and structure.

Examples

User-Managers	*Natural Resource: Known/ Predictable*	*Natural Resource: Not Well Known/ Unpredictable*
Identifiable/ Coherent Group	**I. Irrigation water management**	**II. Coastal fisheries**
Lacking Group Identity/Structure	**III. Forest management**	**IV. Rangeland management**

Institutionalizing CBNRM

- Easiest in situation I; the most difficult in situation IV; and of intermediate difficulty in situations II and III.
- Also easier where the benefits of management:
  - Accrue **immediately** or **very soon** rather than after a long time;
  - Accrue **locally** rather than remotely;
  - Are relatively **tangible** rather than hard to identify;
  - Are distributed to the **same persons** who bear the costs of management, rather than to different persons.

Recommended Reform Strategies

- **Decentralization**:

- **Co-management**: Local communities manage their local natural resources in an efficient and sustainable way in collaboration with other stakeholders, including central governments agencies, local governments, NGOs, and the commercial private sector.

Why decentralization?

- Facilitates the use of local knowledge and information in designing the rules
- Enhances local participation and ownership, and therefore voluntary compliance with the rules
- Facilitates monitoring and enforcement
- Unleashes new resources, particularly resources in kind, at the local level

Why co-management?

- **Local communities** that are vested with control and authority over decisions and resources are more likely to pay attention to long-term objectives and system-level effects than those who are not
- However, there are still important roles for **central government agencies**:
  - Establishing a basic legal framework, including property rights
  - Managing the overall ecosystem
  - Controlling spillovers, such as non-point pollution

Why co-management? (cont.)

- It's one thing for local governments and communities to engage in **"provision"** activities:
  - Monitoring the harvesting and use of the natural resource.
- It's another things to engage in **"production"** activities:
  - Growing crops, raising livestock, harvesting forests, fishing, and marketing produce
  - Actually constructing and maintaining collective investments (e.g. like irrigation facilities)

What precisely is the relationship between Buenos Aires and Virginia?

- For the management of global commons, "decentralization" is not an ideology, but a reality:
  - Argentina, Kazakhstan
- Successful decentralization depends on
  - Collective action and co-management
  - Representativeness
  - Accountability and transparency
  - Effective media, advocacy groups