

The Institutional Analysis and Design Framework

Weeks 9-10

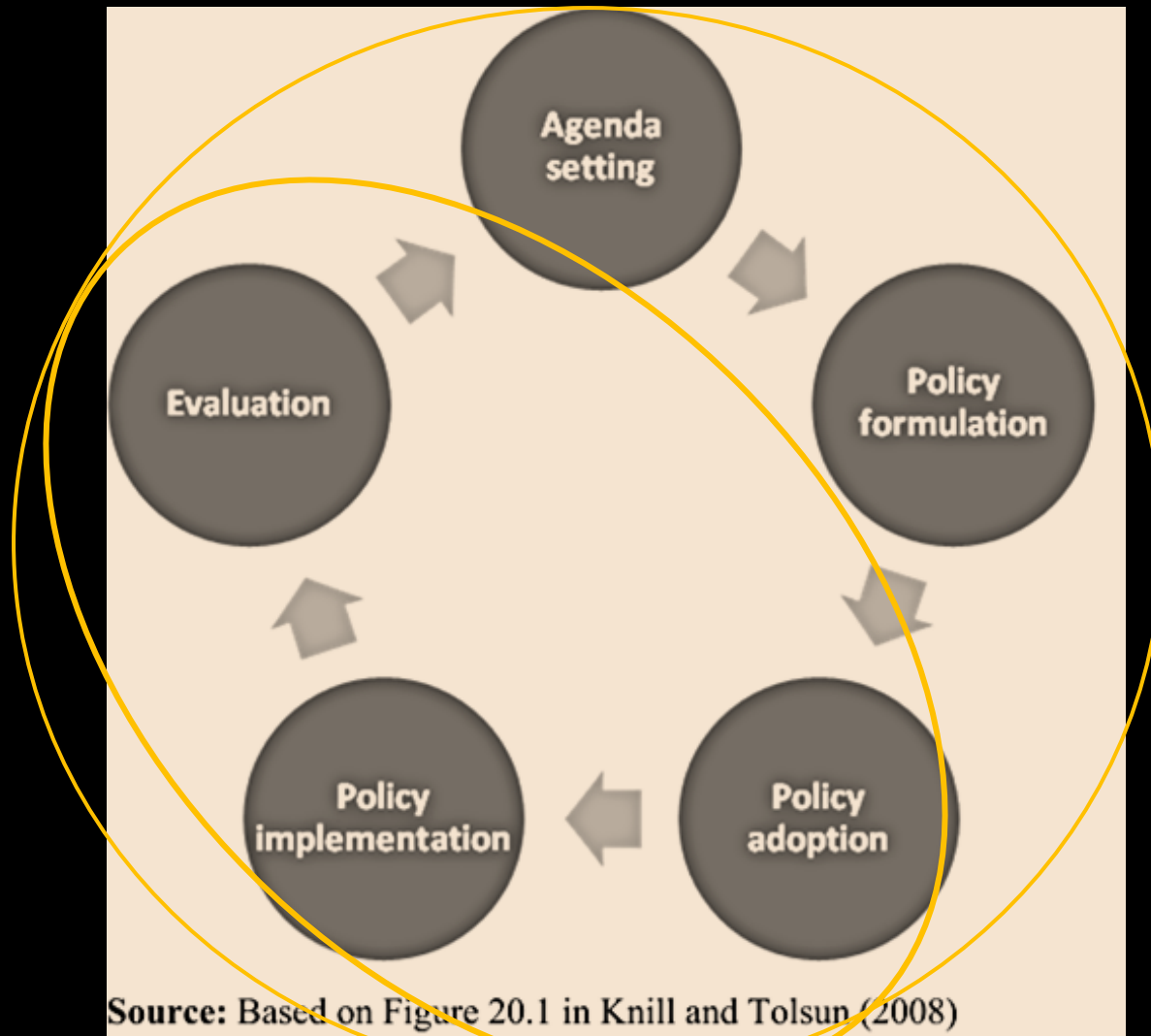
May 26, May 28, June 2, 2020

Which speaks to you today?

- “It’s a man’s man’s man’s world.” (James Brown)
- “No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be.” (Isaac Asimov)
- “I’m more interested in interpersonal relationships – between lovers, families, siblings. That’s why I write about how we treat each other.” (Terry McMillan)
- “Learn the rules like a pro, so you can break them like an artist.” (Pablo Picasso)



Policy stages and IAD



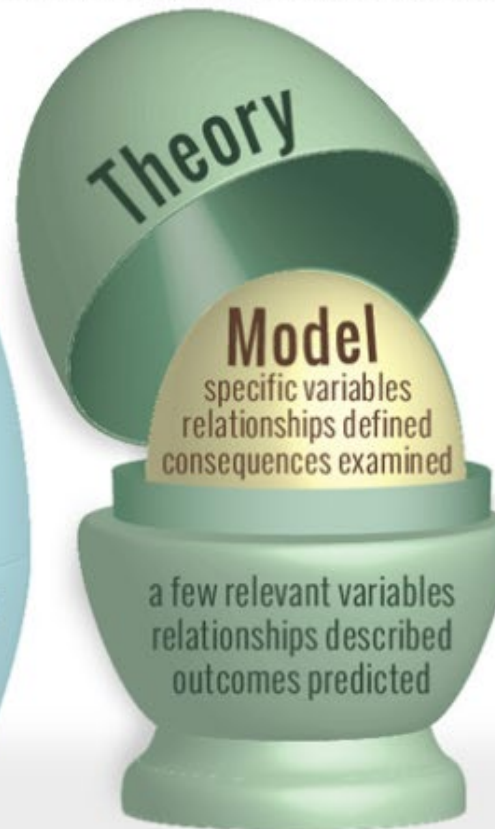
Key IAD dimensions

- Bounded rationality
- Focus on rules and incentives
- No one institutional form is a “panacea.”
- Frameworks vs. theories vs. models
- Most commonly associated with political economy, public choice, and rational choice theorizing, but can accommodate other theories.

Framework - Theory - Model

Ostrom and her colleagues adopted specific conceptual definitions for the terms *framework*, *theory* & *model* and they are used to describe a range of the most general to the most precise assumptions by a scholar. Though the concepts are nested, this does not preclude the idea that a theory may fit within multiple frameworks, or that a model may be informed by multiple theories.

a **framework** identifies universal elements that any theory related to the same class of phenomena would need to include to help analysts **generate the questions** that need to be addressed.



a **theory** specifies which part of a framework are useful to explain a range of outcomes and relationships and makes general working assumptions towards this. These are analytical tools used to **diagnose a phenomenon, explain its processes, and predict outcomes.**

(e.g.: game theory, micro-economic theory, common-pool resource theory)

a **model** uses some precise assumptions about a few variables (such as motivations of actors and structure of situations) within a theory to **examine consequences** of these assumptions.

F/T/M example: ACF

- **Framework:** Advocacy Coalition Framework (ACF)
- **Theory:** The devil shift encourages people (who are substantially motivated by their beliefs) to participate in advocacy coalitions.
- **Model:**
 - Choice to join a coalition_{*i*} = fcn(free time_{*i*} + belief_{*i*} strength_{*i*} + education_{*i*} + income_{*i*})
 - Can be tested with multivariate regression, assuming a large enough sample.
 - Statistical model:

$$P = \frac{e^{a+bX}}{1 + e^{a+bX}}$$

F/T/M example: MSF

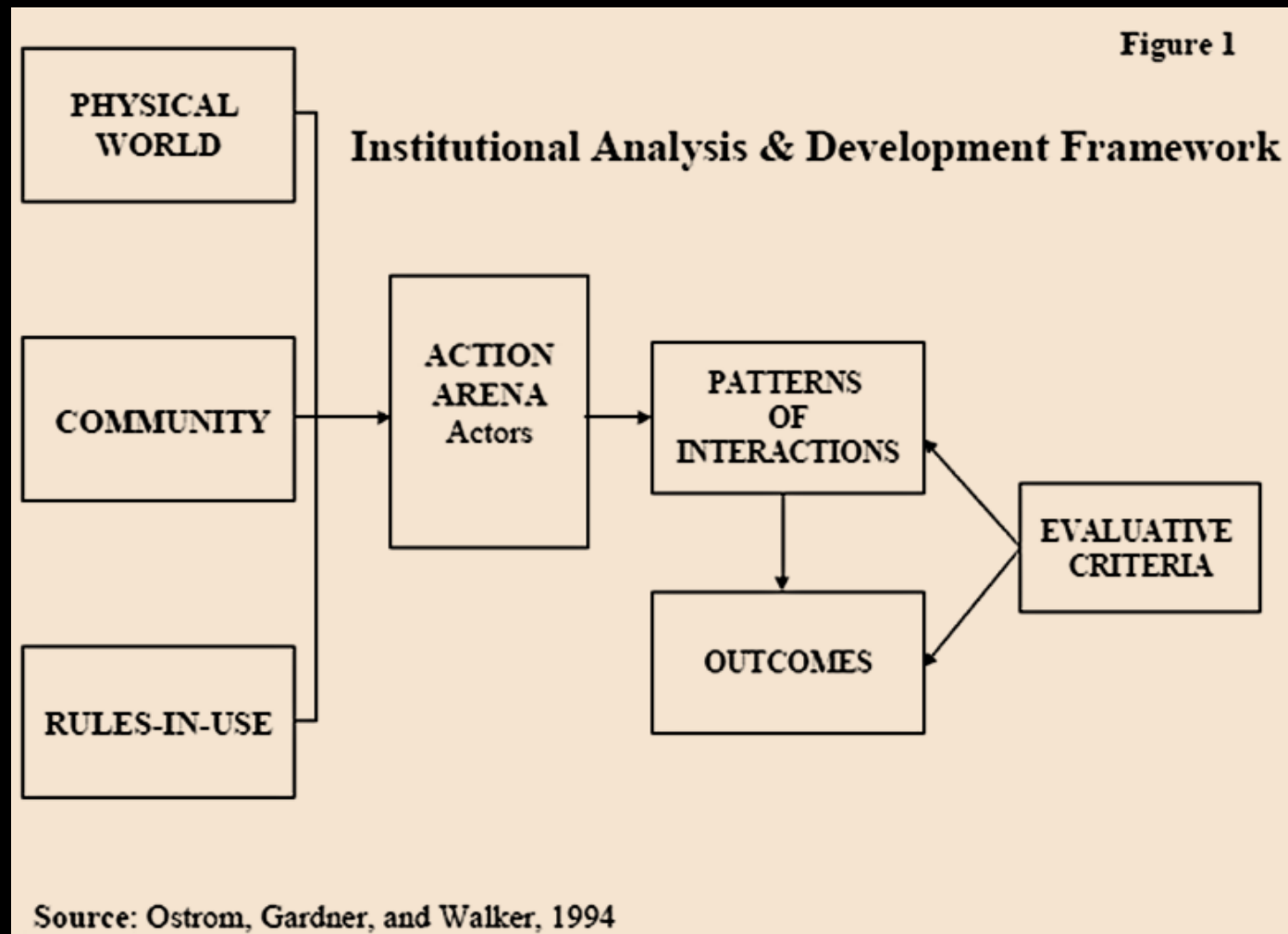
- **Framework:** Multiple Streams Framework (MSF)
- **Theory:** Policy entrepreneurs are more successful at achieving policy adoption when they can link their preferred policy solution to a focusing event in the problem stream.
- **Model:**
 - Policy entrepreneur success = fcn(presence/absence of focusing event in community where adoption is sought + reputation of the policy entrepreneur)

F/T/M example: MSF

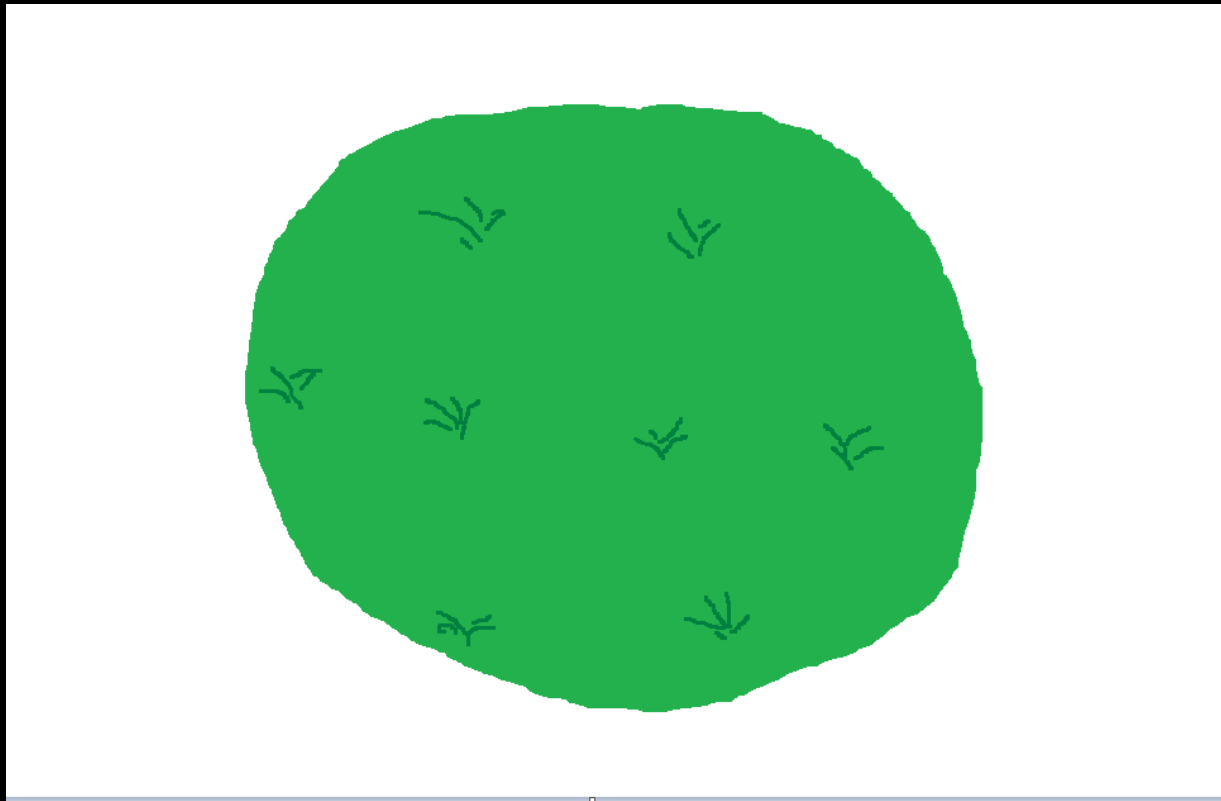
Can be tested by case studies of policy entrepreneurs championing the same policy in similar locales; cases selected based on presence/absence of focusing event and entrepreneur reputation, and success examined, e.g.:

No focusing event, strong reputation	No focusing event, poor reputation
Focusing event, strong reputation	Focusing event, poor reputation

Institutional Analysis and Development Framework

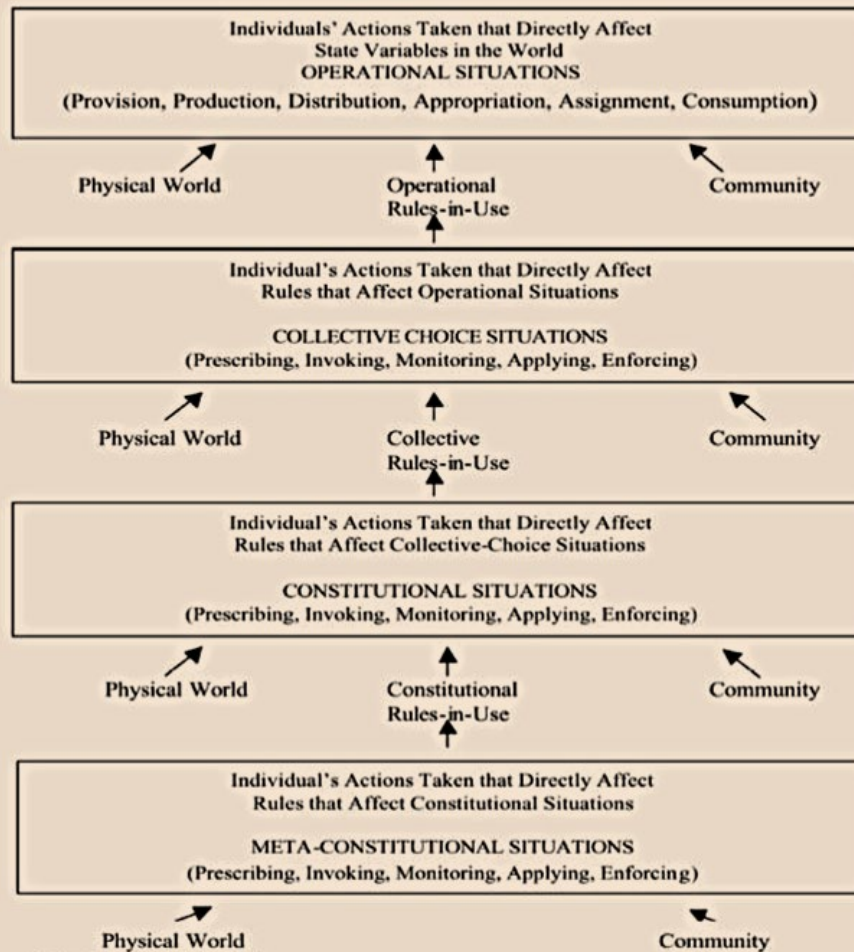


Case study to understand the IAD: Tragedy of the commons



Tiers of action

Figure 1: Levels of analysis and outcomes



Source: E. Ostrom (1999a).

Tiers of action

- **Operational**

- **Day-to-day** decisions and interactions that create outcomes in the world
- Types of actions: **Provision, production, distribution, appropriation, assignment, consumption**



- **Collective choice**

- Decision-makers establish **rules for what can and cannot occur at the operational level.**
- Types of actions: **Prescribing, invoking, monitoring, applying, enforcing**



Tiers of action

- **Constitutional**
 - Decision-makers establish **rules for how collective choice decision-making occurs and to what it can apply.**
 - Types of actions: see collective level



Clean Water Act became law in 1972



Environmental Topics

Laws & Regulations

About EPA

Search 1/19/17 snapshot

Constitutional

National Pollutant Discharge Elimination System (NPDES)

Collective choice

What is NPDES?

The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the United States.

Upcoming Event

Operational

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1) _____ Form Approved: CMB No. 2040-0086, Approval expires 3-31-98.

2C NPDES **EPA** U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
 Consolidated Permit Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. Deg.	2. Min.	3. Sec.	1. Deg.	2. Min.	3. Sec.	

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Consider a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT (Description or List codes from Table 2C-1)	
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1

Why are states making major changes to abortion laws now?

what is happening at the **operational level?**



Tough, new abortion laws in Alabama and several other states face legal battles in court... and that's the point. We explain how they take aim at Roe v. Wade. Just the FAQs, USA TODAY

Missouri's last abortion clinic could close, making the state the only one without a facility

The current license for the clinic in St. Louis expires Friday, Planned Parenthood said, adding that if it is not renewed, Missouri would become the first state without a working abortion facility since the landmark Roe v. Wade Supreme Court decision in 1973.

what is happening at the **collective choice level?**



what is happening at the **constitutional choice level?**

Abortion battles heat up with Kavanaugh on Supreme Court

Why are we experiencing measles outbreaks?

J *Pediatr Pharmacol Ther*. 2016 Mar-Apr; 21(2): 104–109.
doi: [10.5863/1551-6776-21.2.104](https://doi.org/10.5863/1551-6776-21.2.104)

PMCID: PMC4869767
PMID: [27199617](https://pubmed.ncbi.nlm.nih.gov/27199617/)

Exploring the Reasons Behind Parental Refusal of Vaccines

Chephra McKee, PharmD^{M1} and Kristin Bohannon, BS²

▶ Author information ▶ Copyright and License information [Disclaimer](#)

This article has been [cited by](#) other articles in PMC.

Abstract

Go to: 

Parental refusal of vaccines is a growing concern for the increased occurrence of vaccine preventable diseases in children. A number of studies have looked into the reasons that parents refuse, delay, or are hesitant to vaccinate their child(ren). These reasons vary widely between parents, but they can be encompassed in 4 overarching categories. The 4 categories are religious reasons, personal beliefs or philosophical reasons, safety concerns, and a desire for more information from healthcare providers. Parental concerns about vaccines in each category lead to a wide spectrum of decisions varying from parents completely refusing all vaccinations to only delaying vaccinations so that they are more spread out. A large subset of parents admits to having concerns and questions about childhood vaccinations. For this reason, it can be helpful for pharmacists and other healthcare providers to understand the cited reasons for hesitancy so they are better prepared to educate their patients' families. Education is a key player in equipping parents with the necessary information so that they can make responsible immunization decisions for their children.

INDEX TERMS: parental refusal, personal beliefs, religious, safety concerns, vaccine hesitancy

Measles Outbreak Declared in Los Angeles County



A measles vaccine at a clinic in Los Angeles. Five cases of measles are being investigated by the Los Angeles County Department of Public Health. Lucy Nicholson/Reuters

HEALTH & FITNESS

Measles outbreak prompts push to end vaccination exemptions in New York



 4:56
+ PLAYLIST
DOWNLOAD
EMBED
TRANSCRIPT

The Philippines Is Fighting One Of The World's Worst Measles Outbreaks

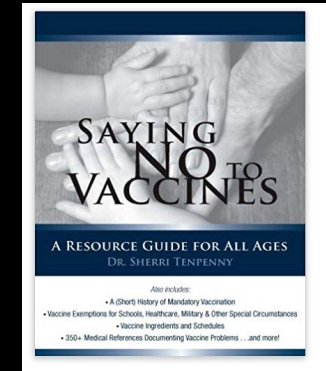
May 23, 2019 - 6:12 AM ET
Heard on Morning Edition

JASON BEAUBEN   



A 6-month-old baby with measles at San Lazaro hospital in Manila, Philippines. The country's measles outbreak has been

what is happening at the operational level?



what is happening at the collective choice level?

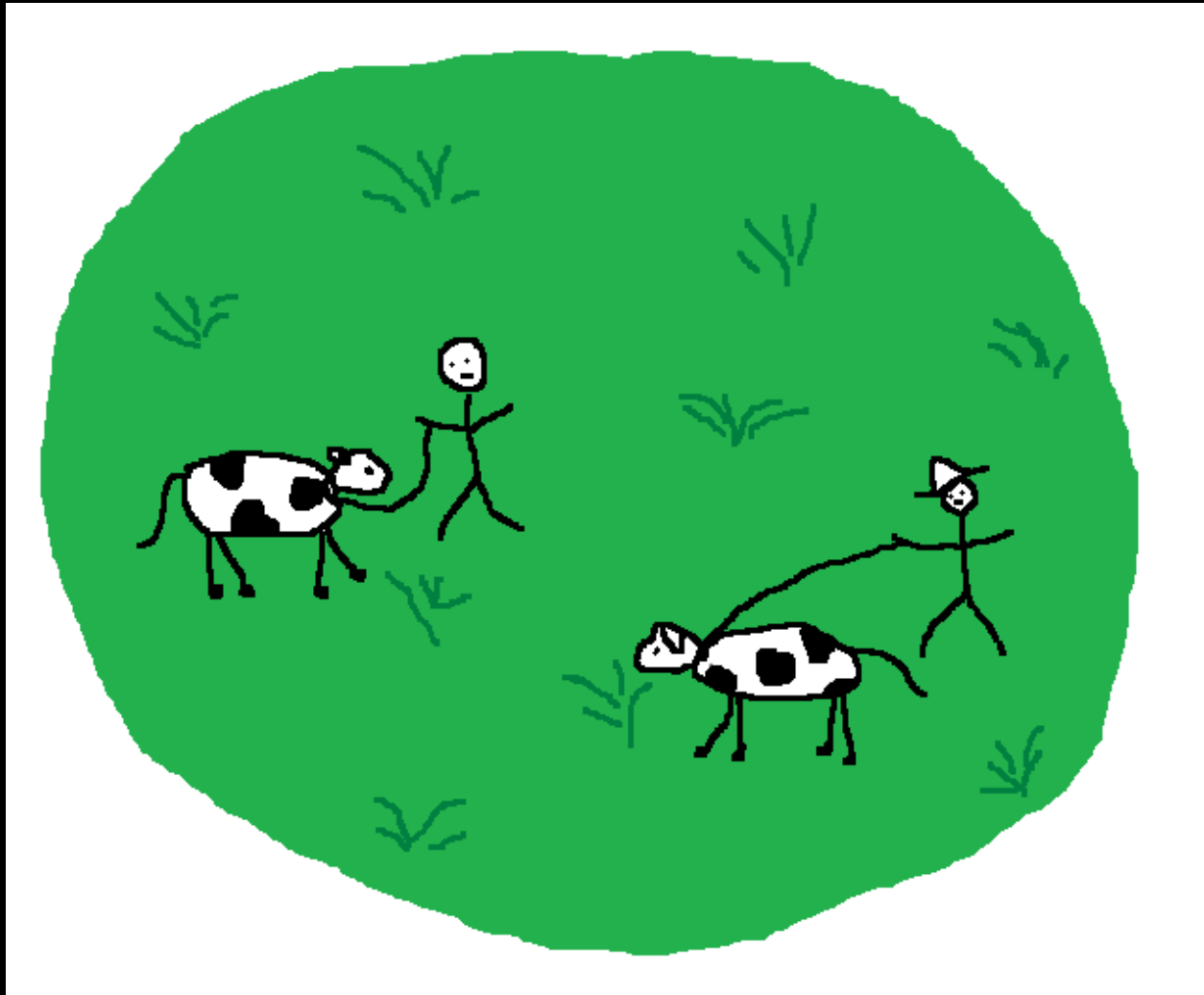


what is happening at the constitutional level?

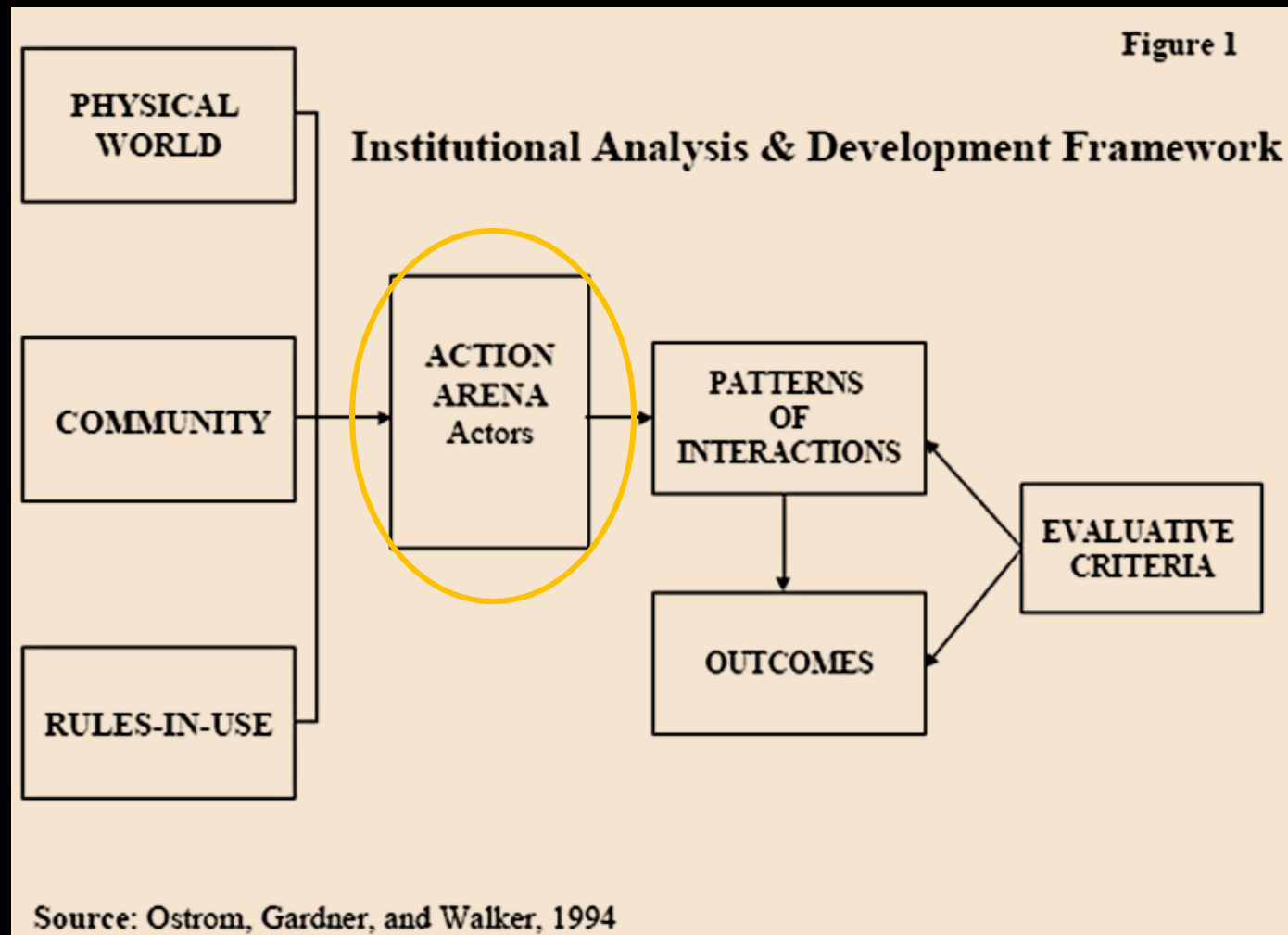
Five things to know now about California's new vaccine law



For the CPR example, we will focus on the operational level

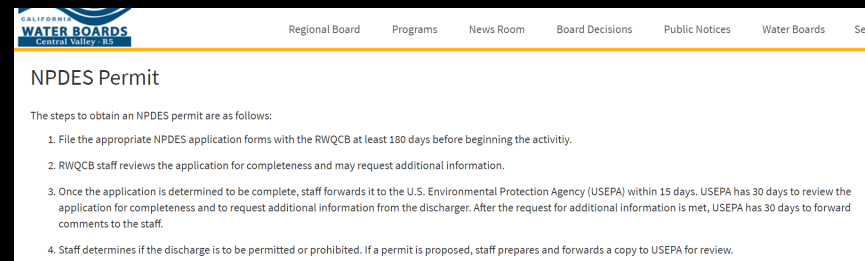


Institutional Analysis and Development Framework



Action arenas

- This is where analysis usually focuses.
- **Action arena = actors + action situation.**
- The action arena is the **social space where individuals interact**, doing things like . . .
 - Exchanging goods and services
 - Solving problems
 - Exercising power
 - Fighting
 - (And many other things)



The screenshot shows the website for the California Water Boards, Central Valley Region. The page title is "NPDES Permit". The navigation menu includes "Regional Board", "Programs", "News Room", "Board Decisions", "Public Notices", and "Water Boards". The main content area lists the steps to obtain an NPDES permit:

1. File the appropriate NPDES application forms with the RWQCB at least 180 days before beginning the activity.
2. RWQCB staff reviews the application for completeness and may request additional information.
3. Once the application is determined to be complete, staff forwards it to the U.S. Environmental Protection Agency (USEPA) within 15 days. USEPA has 30 days to review the application for completeness and to request additional information from the discharger. After the request for additional information is met, USEPA has 30 days to forward comments to the staff.
4. Staff determines if the discharge is to be permitted or prohibited. If a permit is proposed, staff prepares and forwards a copy to USEPA for review.

In your groups . . .

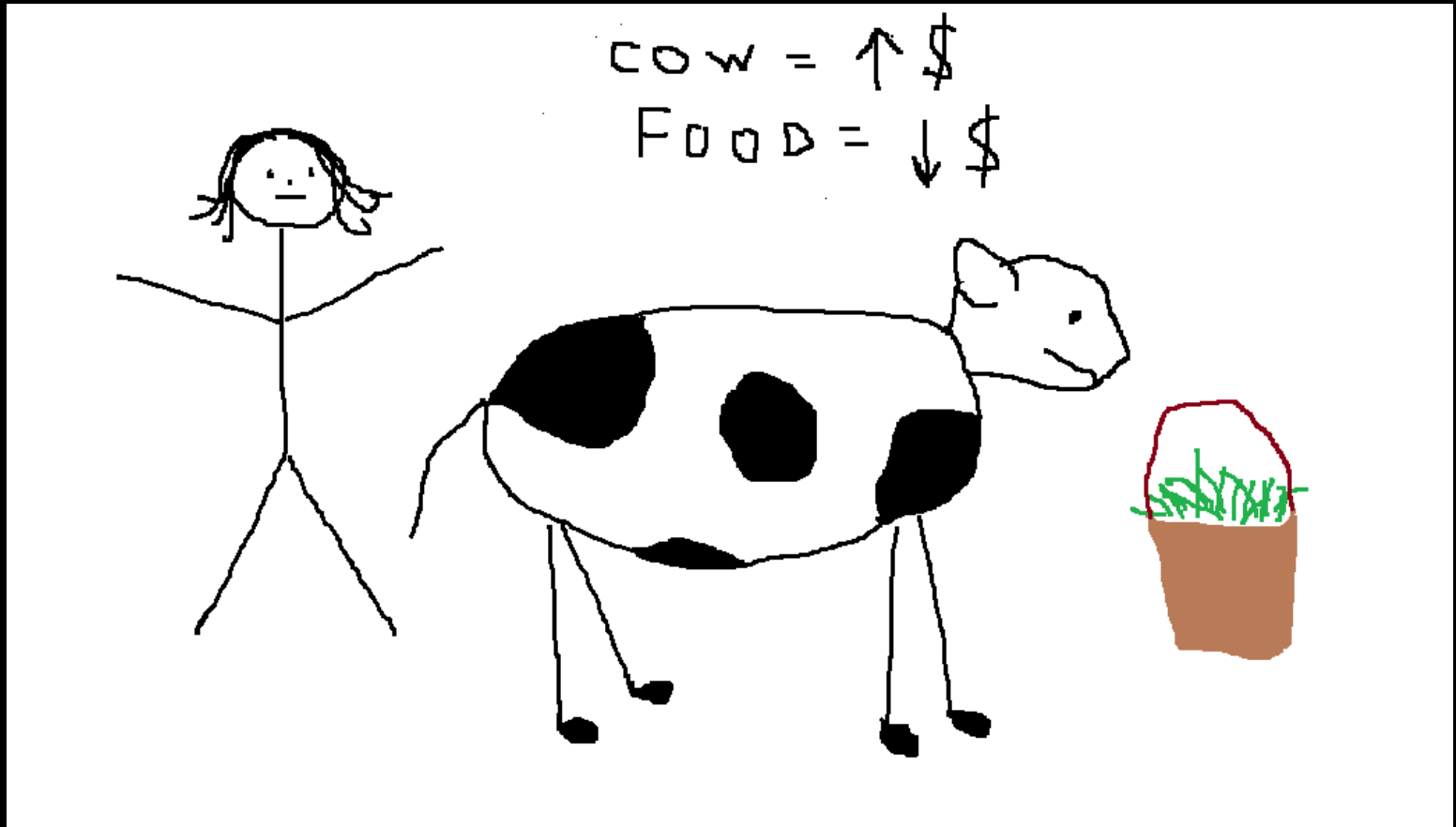
- Select a mini-case study on which to focus.
- Answer worksheet questions 1 and 2.

Actors in the action arena

- When evaluating actors, consider . . .
 - Their **resources**
 - The **valuations they assign to states of the world and outcomes**
 - The way they **acquire, process, retain, and use knowledge/information**
 - The **processes they use for selecting ways to interact**



Commons example: Actors



Commons example: Actors

- We assume that the herdsman **wants to increase resources.**
 - Cows can earn money. More cows, more money.
 - It costs money to feed a cow by buying feed from the store, reducing overall resources.
 - It does not cost money to feed a cow by putting it on the common pasture, because no one owns the pasture.
- The **information function is very simple.**



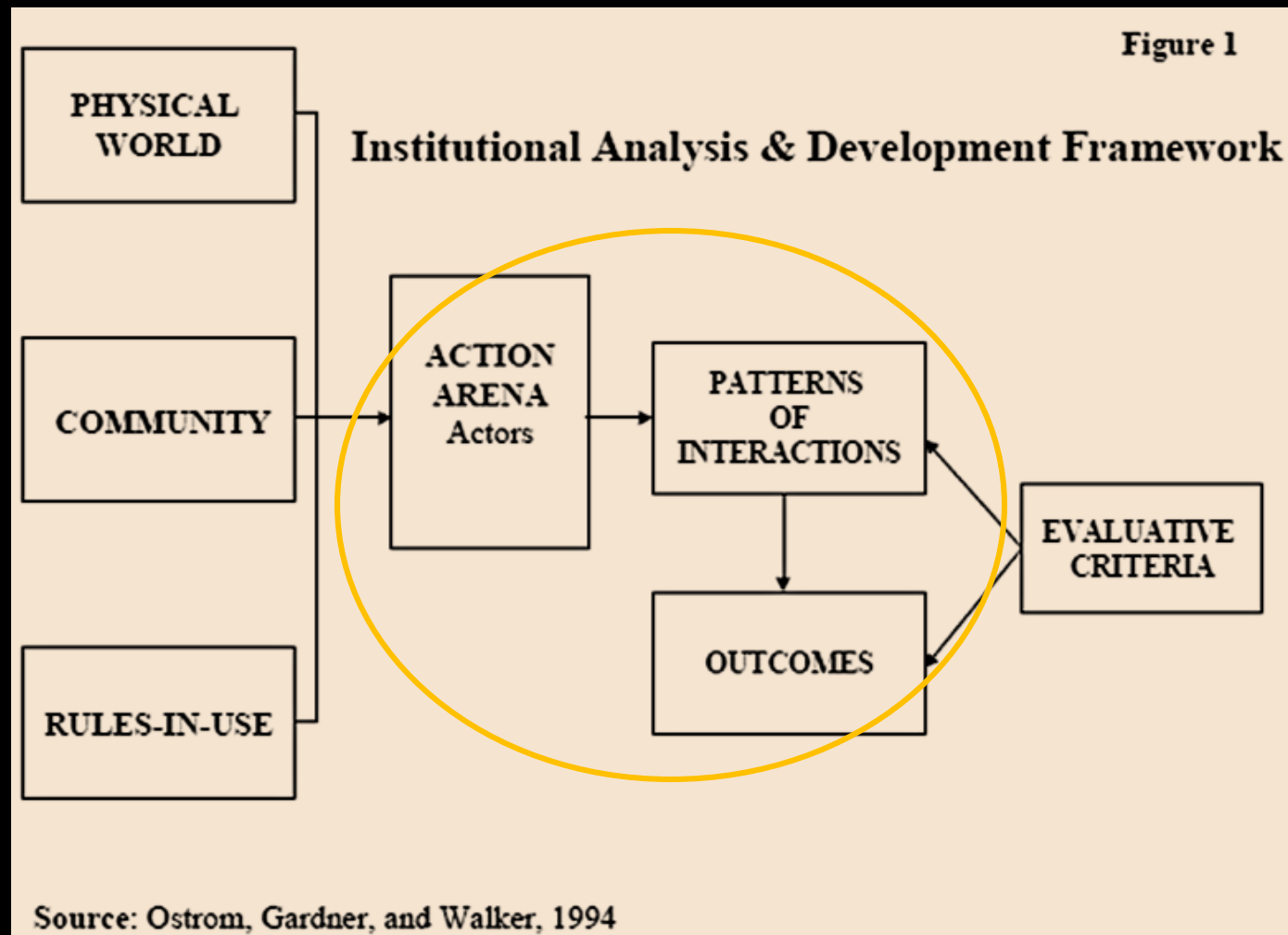
Commons example: Actors

- We assume that the herdsman **values money and cows and does not place high value on environmental quality.**
- We assume the herdsman **makes choices based on profit maximization.**
- These assumptions are based on **a rational actor model** (process by which people interact).

In your groups . . .

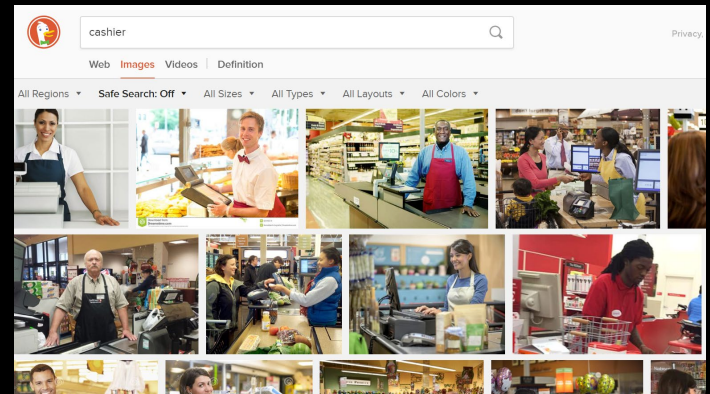
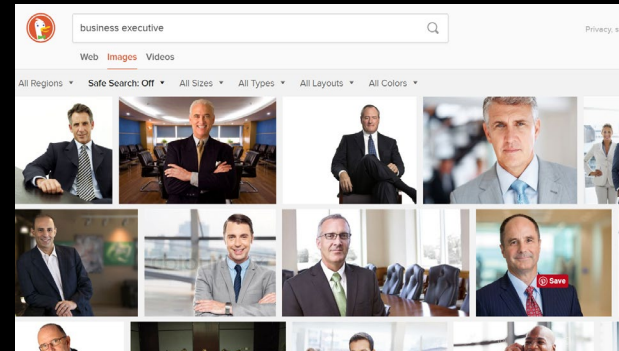
- Answer worksheet questions 3-5

Institutional Analysis and Development Framework

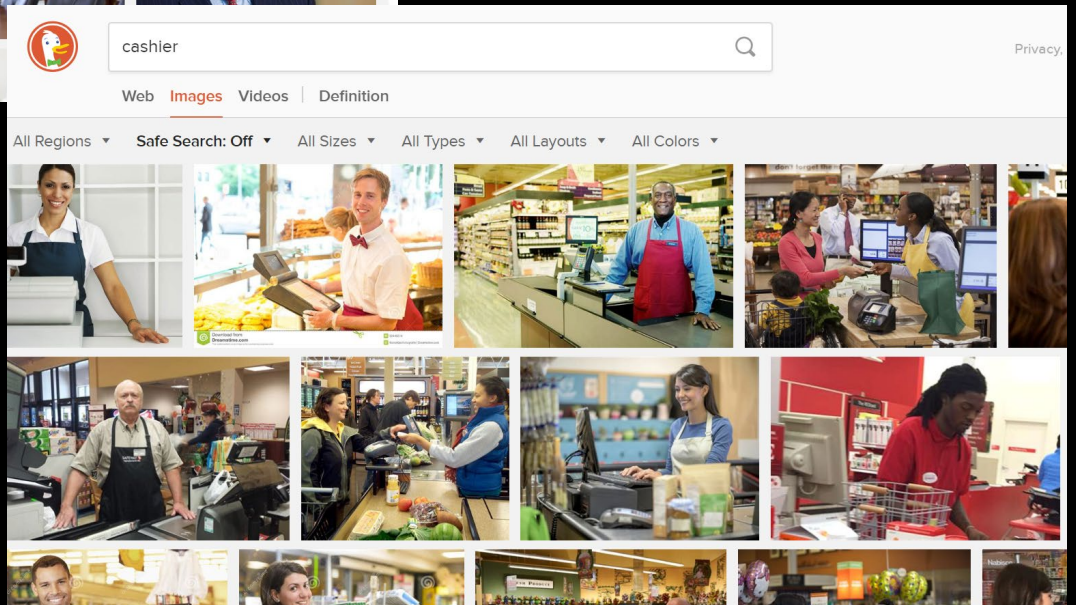
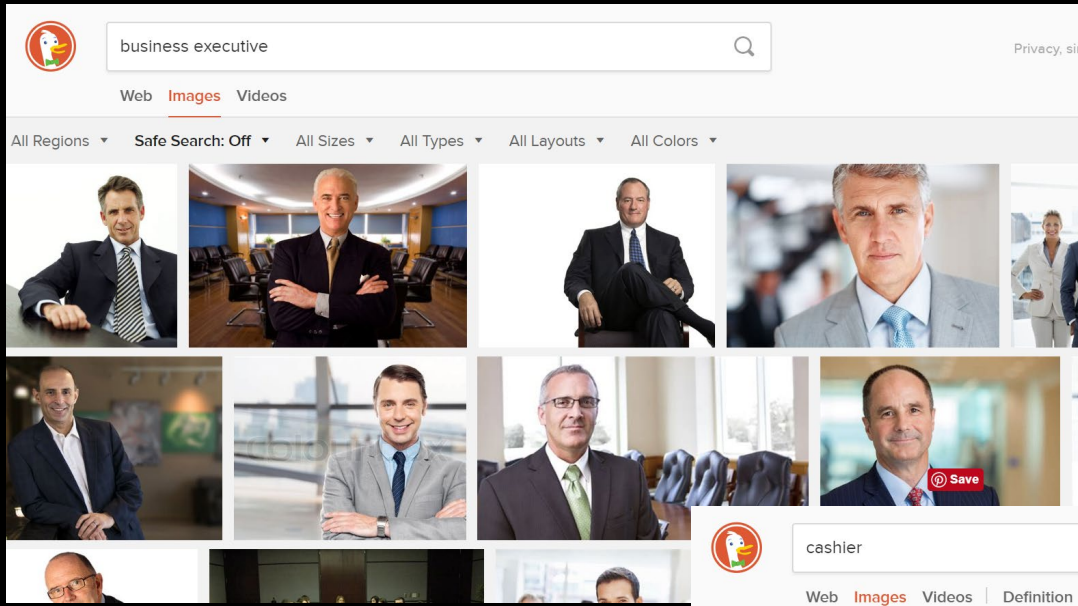


Action arenas → outcomes

- Relational elements by which interactions produce outcomes
 - **Participants** . . .
 - who hold **positions**
 - and have a **certain level of control**
 - and access to **certain information**
 - who pursue **actions linked to outcomes**
 - and realize **outcomes**
 - and evaluate the **costs and benefits of outcomes**



Side note: SERIOUSLY?????

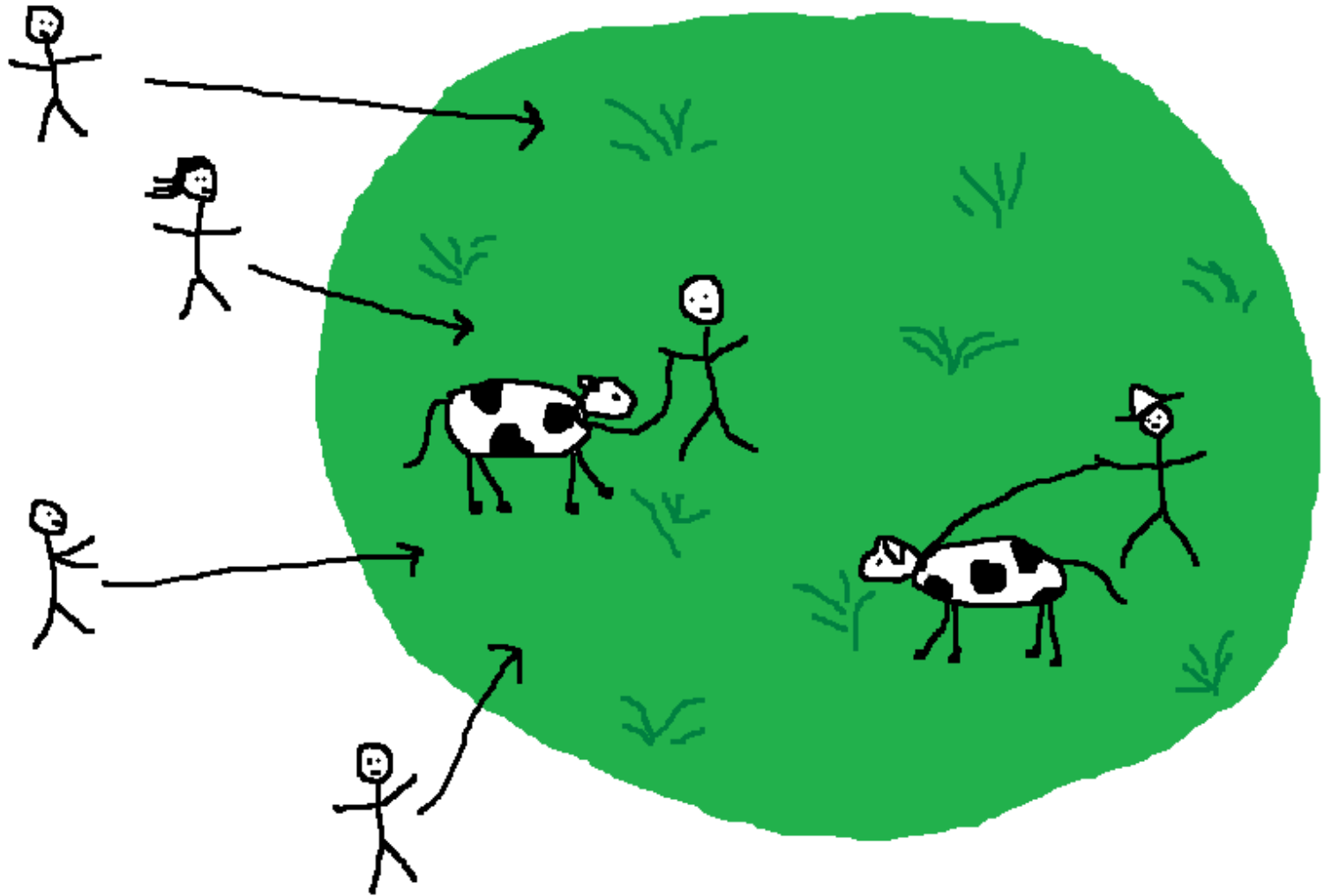


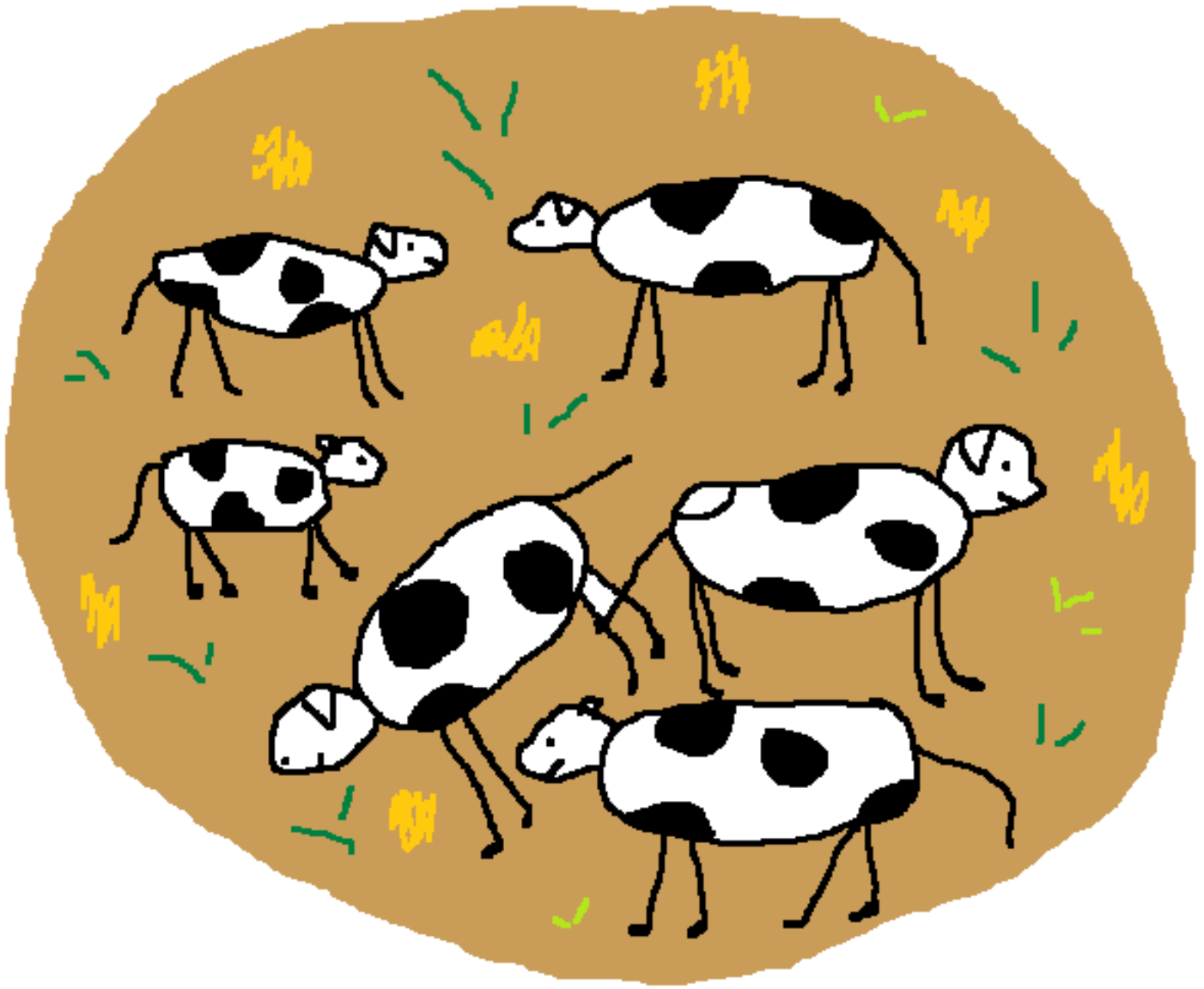
Commons action arena

- Elements . . .
 - Participants = herdsmen (herdspeople!)
 - All in the **same position as users of the commons.**
 - Each **controls only their own actions and not the actions of anyone else.**
 - Each has information about **private costs and benefits.**
 - Each pursues **actions (placing cows on the pasture) that lead to outcomes (less grass).**

Commons action arena

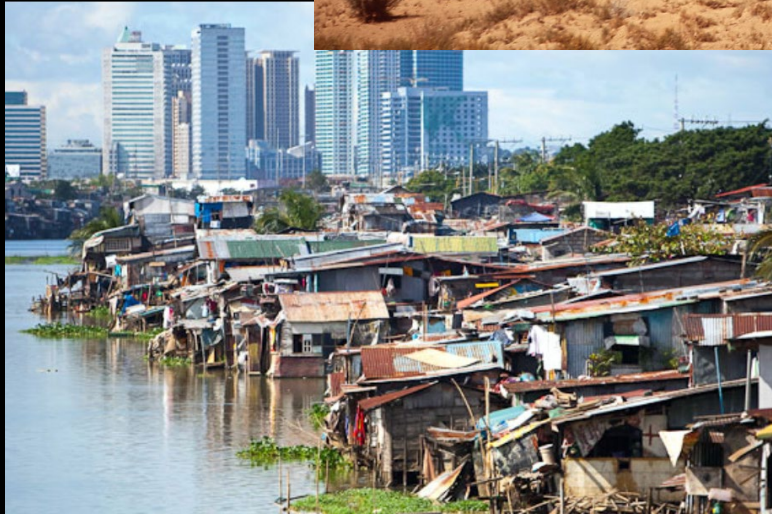
- Elements . . .
 - For each herds person, up until the point of collapse, **the costs of putting more cows on the pasture are < costs of declines in available grass.**
 - Each herds person gets all the money from selling their own cow.
 - The costs of having less grass are spread across all the herds people.
 - The grass itself costs nothing.



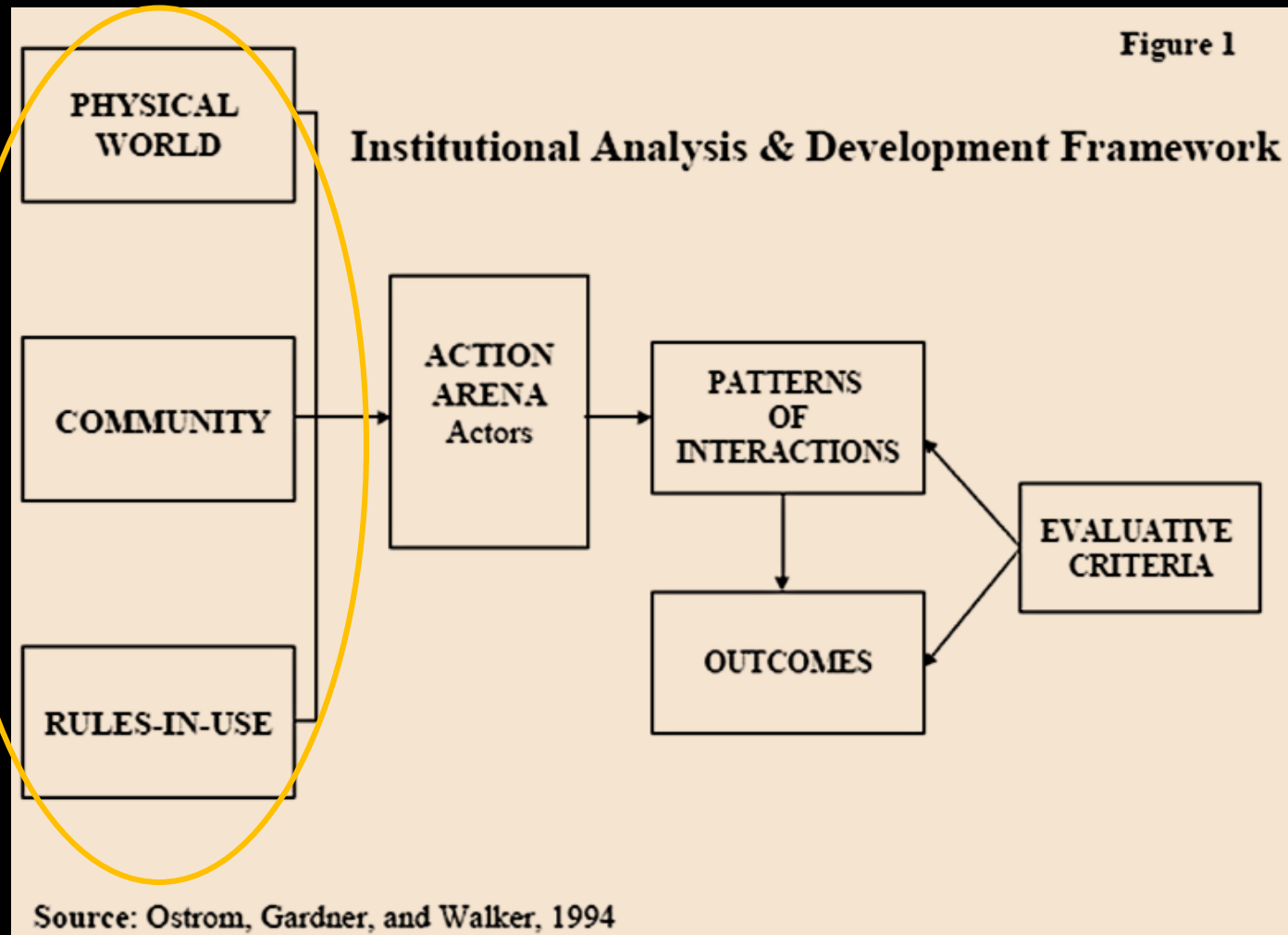


Influencing the action arena

- What happens in the action arena depends on three important clusters of variables:
 - **Rules** used by participants to govern their interactions
 - The **attributes of the biophysical environment**
 - The **structure and attributes of the community** in which the action arena is situated
- Depending on the settings of these variables, the tragedy of the commons might not be a tragedy after all.

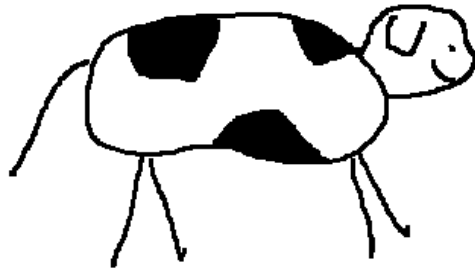


Institutional Analysis and Development Framework



Rules in non-tragedy

- What if herdspeople got together, calculated the number of cows the pasture could sustain while remaining productive over time, **made a law** limiting each herdsman to X cows consistent with that calculation, and enforced the law?



Biophysical environment in non-tragedy

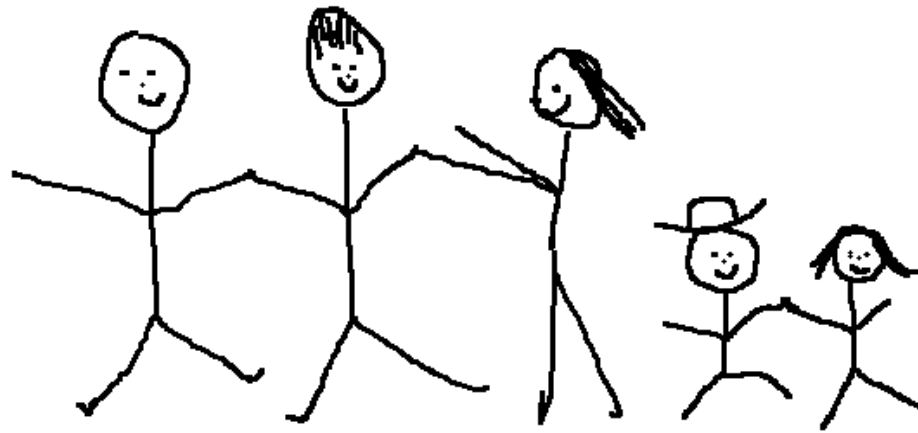
- What if the pasture was **so large and so abundant** that a large number of cows and a large number of people simply didn't make a dent in the fodder available for forage?



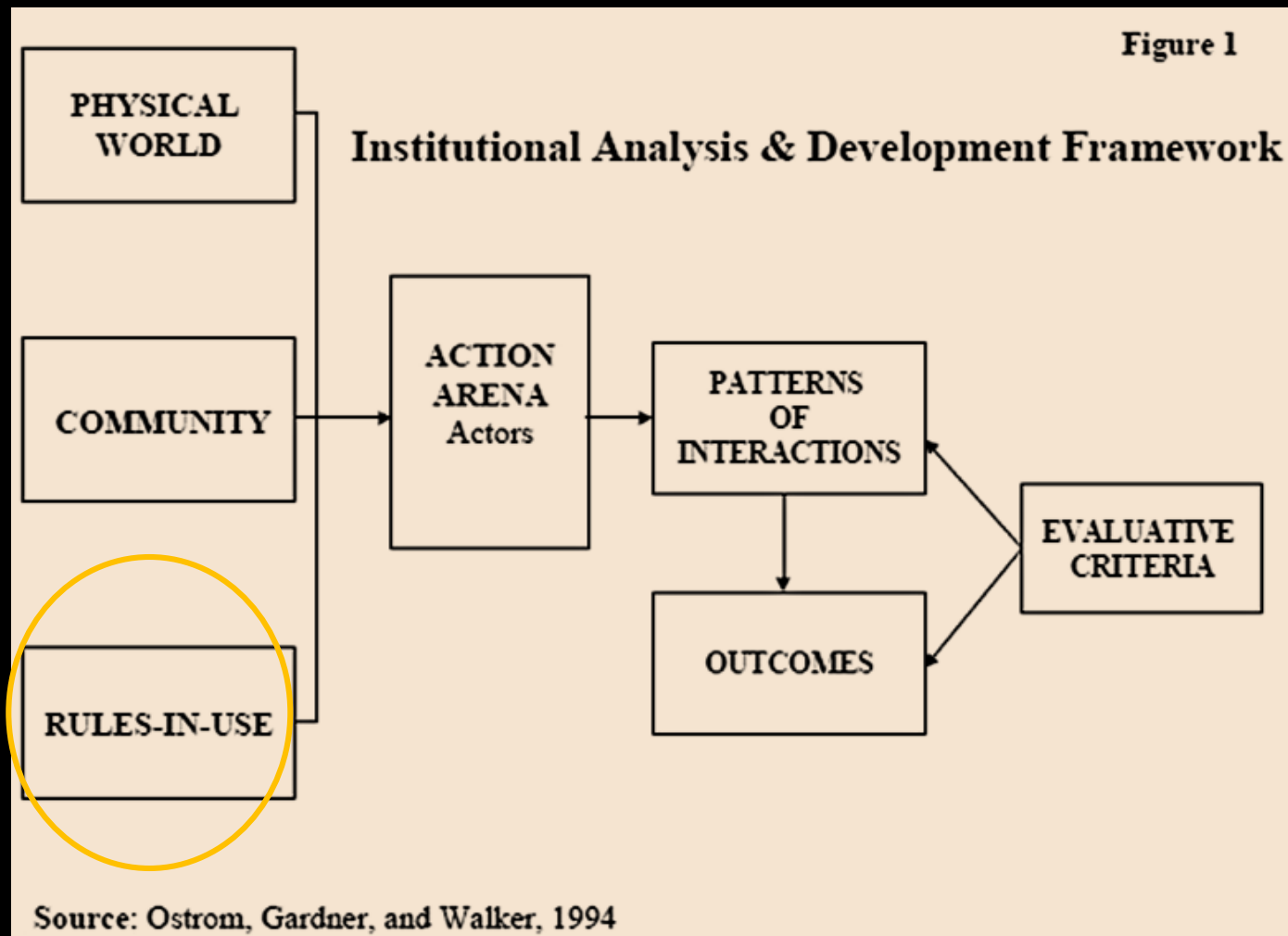
these are the cows

Community in non-tragedy

- What if there **were strong norms in the community** against any person using more than his “fair share” of the common pasture, such that any person who put more cows on the pasture would be shunned by the community?

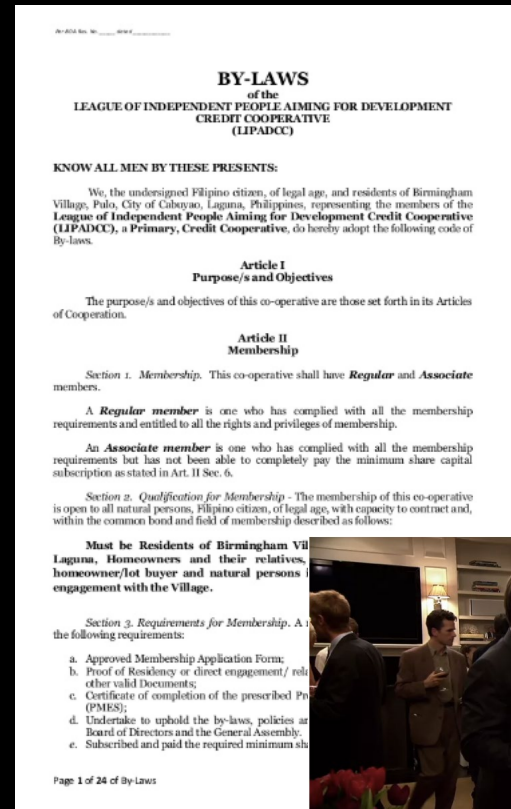


Institutional Analysis and Development Framework



Rules

- Rules-in-use, not just rules-in-form, are what matters.
- Seven types of rules . . .
 - Entry and exit
 - Position
 - Scope
 - Authority
 - Aggregation
 - Information
 - Payoff



Rules in CPR example

- **Entry and exit**
 - Anyone can enter and exit the pasture at any time
- **Position**
 - Everyone occupies the same position and there are no specialized positions
- **Scope**
 - There are no “off-limits” resources; everyone understands that everything in the pasture is fair game
- **Authority**
 - No one is in a position of authority over the behavior of anyone else
 - There are no authoritative decisions about appropriation technology

Rules in CPR example

- **Aggregation**

- There are no aggregation rules that affect choice of harvesting activities

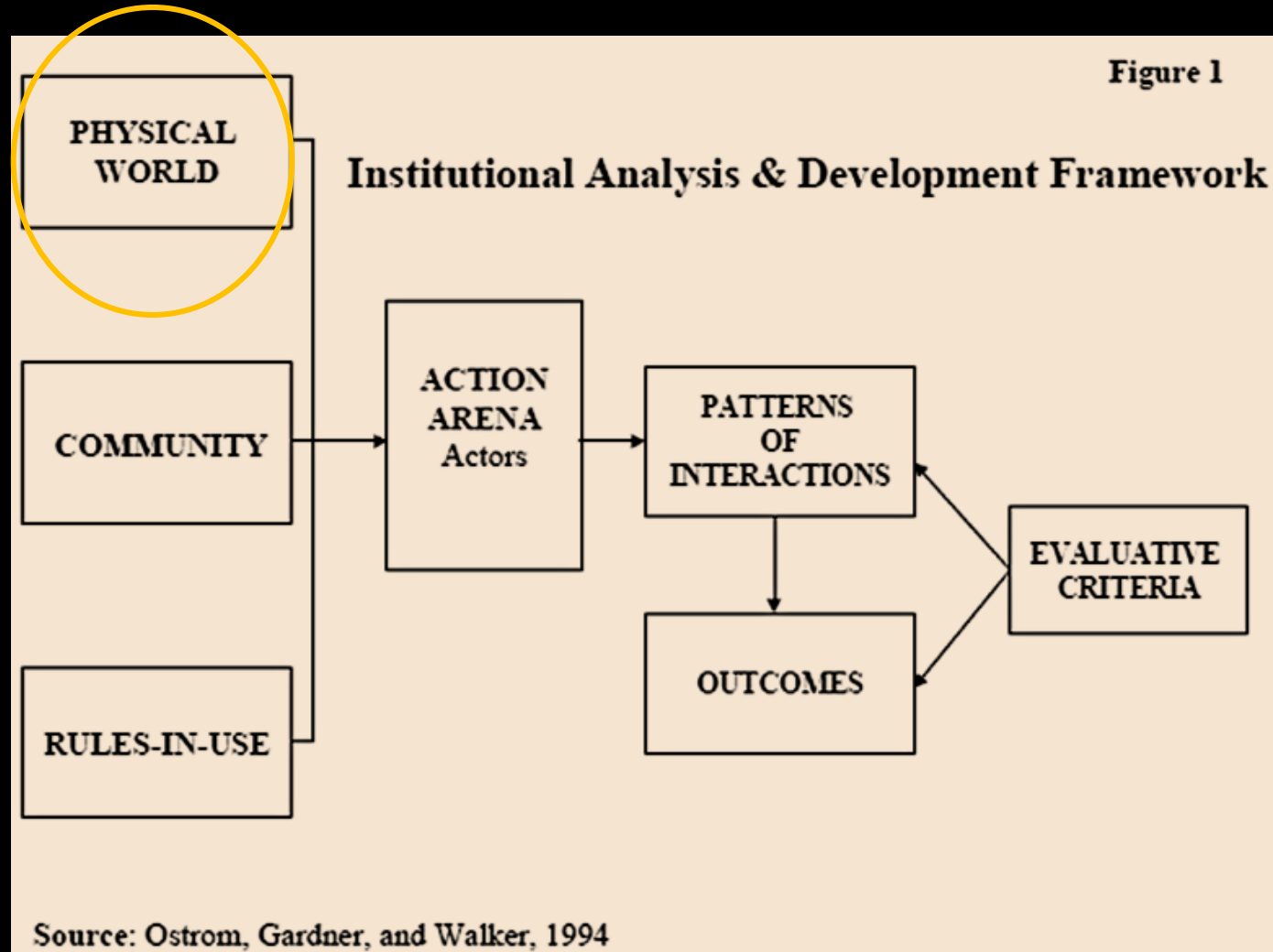
- **Information**

- There are no information rules

- **Payoff**

- There are no sanctions or payoffs for conformance or non-conformance
- No one monitors or enforces in order to award payoffs or sanctions

Institutional Analysis and Development Framework



Biophysical environment

- There are many aspects of the biophysical world that might matter. Commonly consequential aspects include . . .
 - Excludability and the free-rider problem
 - Subtractibility
 - Amount of storage in the system
 - Stationarity versus mobility of the resource



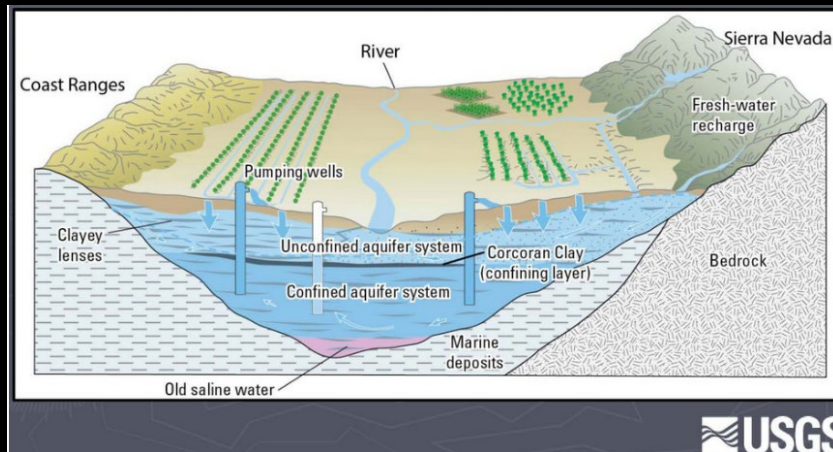
Biophysical environment in CPR example

- **Excludability and the free-rider problem**
 - People cannot be kept from using the pasture.
 - If you spend your resources on improving the pasture, other people will benefit without paying costs.
 - No one has incentive to try to improve the pasture because they fear free-riding.

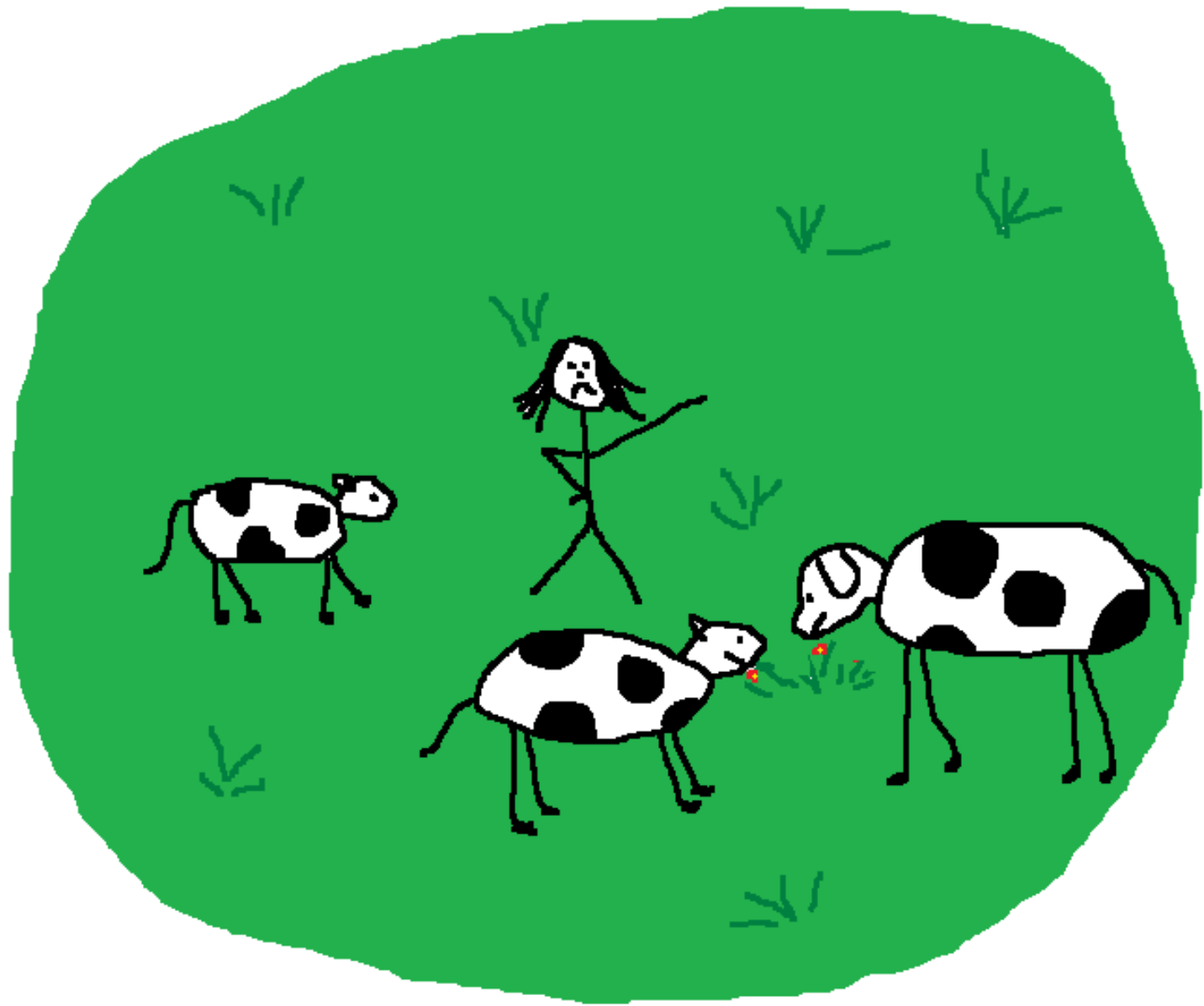
Biophysical environment in CPR example

- **Subtractibility of flow**

- Any resources one herdsman takes are no longer available to anyone else.
- Rush to access the resources to maximize your personal benefits, since use is win-lose.







Biophysical environment in CPR example

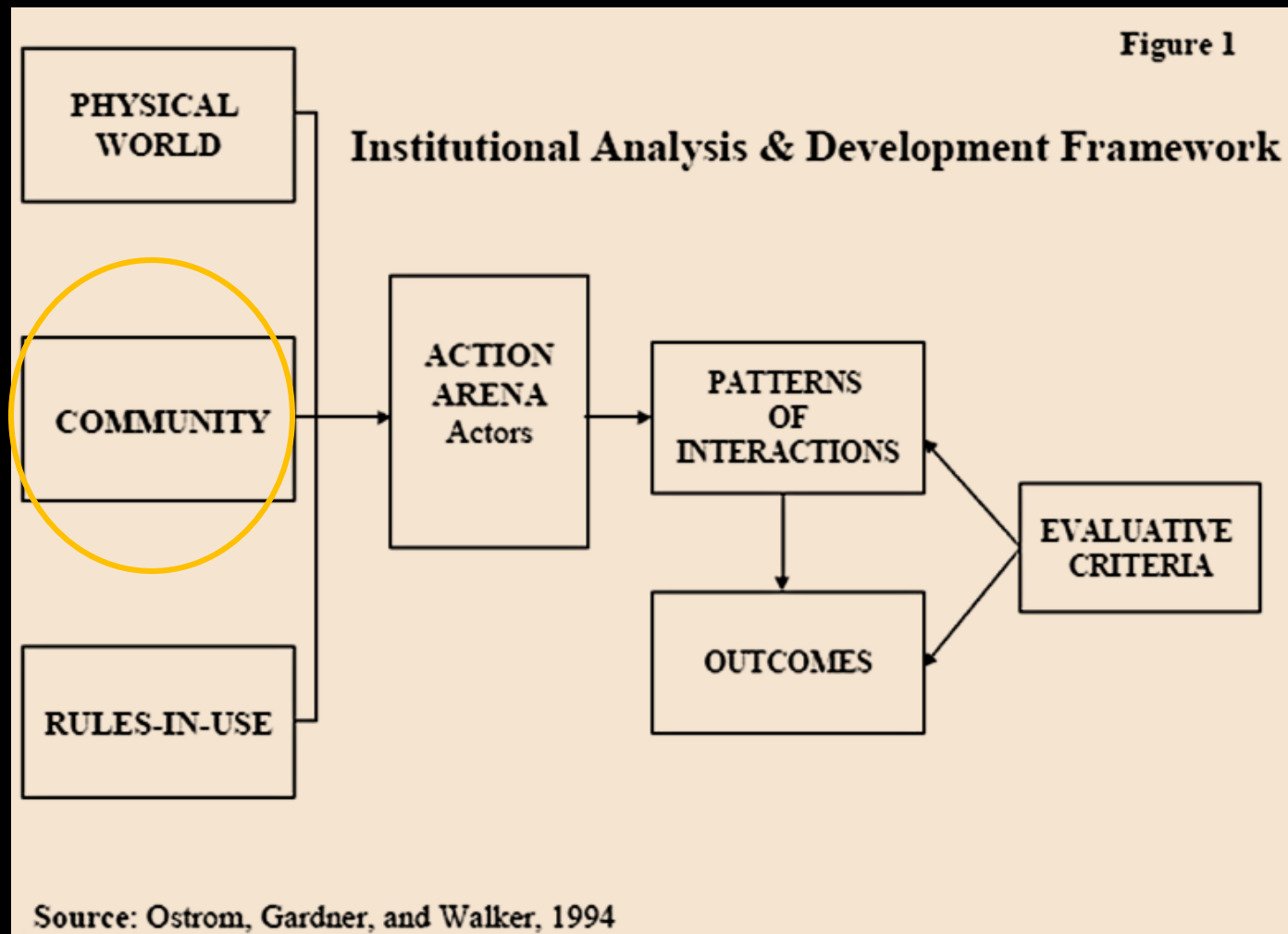
- **Amount of storage in the system**
 - Relates to size, regenerative capacity
 - Pasture may last longer if it is big or regenerates quickly



- **Stationarity versus mobility of the resource**
 - It is probably easier to exhaust a pasture than a fishery because fish are mobile and thus harder to find.
 - Determining who “owns” the fish is also more challenging.



Institutional Analysis and Development Framework



Community

- Community attributes that may matter include . . .
 - **Norms** of acceptable behavior
 - Extent of **common understanding** about the structure of particular action arenas
 - The **extent of homogeneity in preferences** among people in the community
 - **Distribution of resources** among people
 - **“Culture”**
- This is where many of the theories we’ve discussed are inserted into the IAD.

Community in CPR example

- **Norms of acceptable behavior**
 - Putting more and more cows on the pasture until it is exhausted is acceptable.



- **Common understanding of the action situation**
 - Everyone understands the action situation as a relative free-for-all.
 - Everyone expects all others to focus on personal costs and benefits.

Community in CPR example

- Extent of **homogeneity of preferences**
 - All herdsman have the same preferences about making money from cows by putting them on the pasture.
- **Distribution of resources** in the community
 - Resources are distributed equally so everyone stands to benefit from using (up) the pasture.

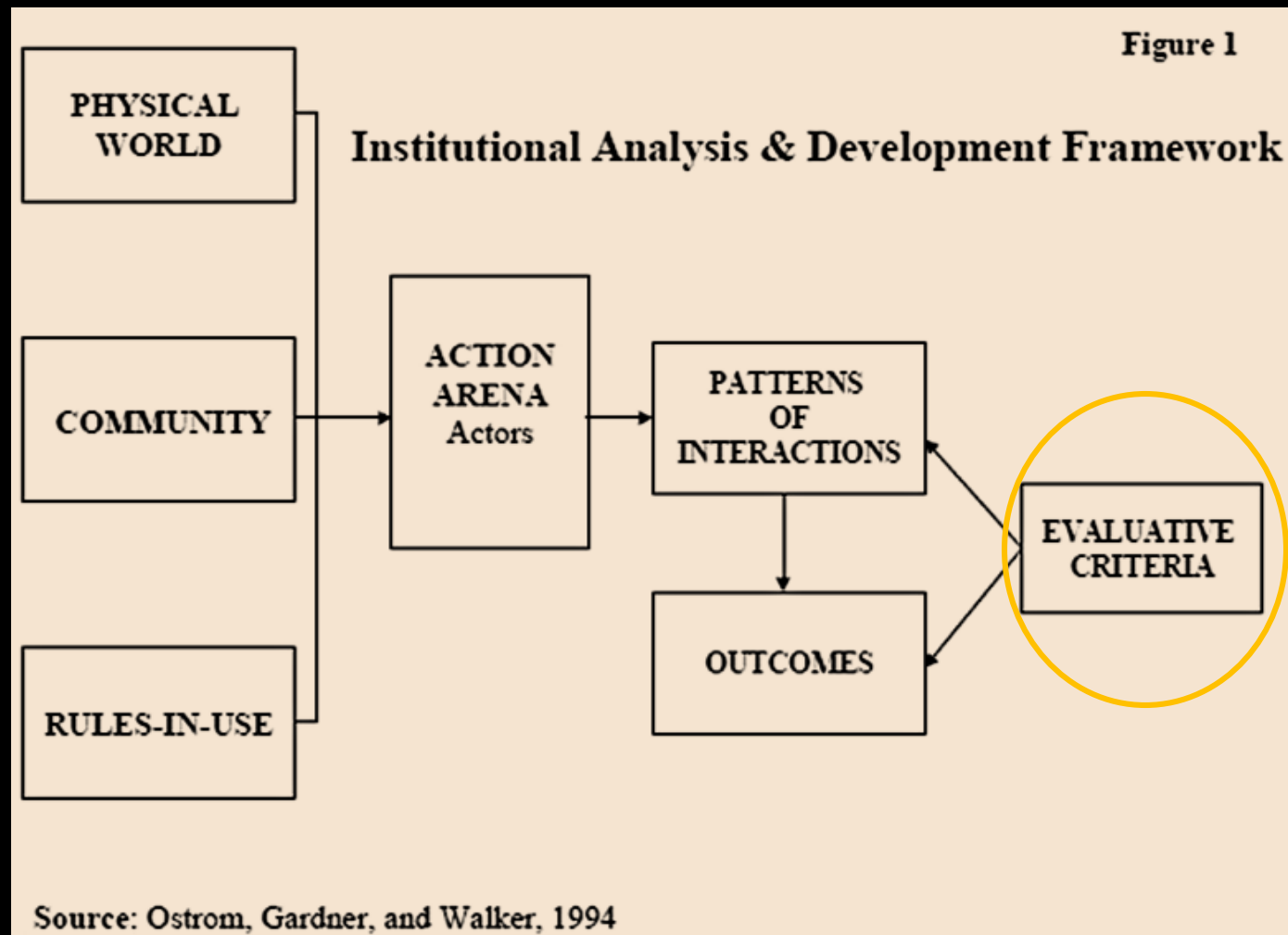
- **Culture**



In your groups . . .

- Answer worksheet questions 6-8.

Institutional Analysis and Development Framework



Evaluative criteria

- Many potential criteria, including . . .
 - **Economic efficiency**
 - What is the net benefit of this policy arrangement?
 - **Fiscal equivalence**
 - Is there equality between what individuals contributed and the benefits they obtain?
 - Is the amount people must pay proportional to their ability to do so?
 - **Redistributional equity**
 - Are resources allocated from the less needy to the more needy?

Evaluative criteria

- Many potential criteria, including . . .
 - **Accountability**
 - Are decision-makers accountable to citizens concerning the use of public resources?
 - **Conformance to general morality**
 - **Adaptability**
 - Can the policy respond easily and successfully to changes in rules, aspects of the community, biophysical attributes, or any of the other variables?

Evaluative criteria

- This is another point at which policy theories can integrate into IAD.

- Ex1: When comparing individuals, those who are more motivated by beliefs may prioritize **conformance with general morality** over **economic efficiency** when evaluating policies; the converse may be true for those more motivated by rationality.
ACF
- Ex2: When comparing policymakers, those whose choices are **more guided by time and attention** (relative to rationality) may prioritize **adaptable outcomes** when evaluating policy; the converse may be true for those more motivated by rationality.
MSF

In your groups . . .

- Answer worksheet question 9.

What might you study using the IAD framework?

- You could investigate specific theories about how changes in . . .
 - The actors
 - The action arena
 - The rules in use
 - The biophysical world
 - The community
 - The evaluative criteria
 - The tier of action
- . . . affect policy outcomes.

Example research questions

- If **not all herdspeople are equally motivated by profit**, does exhaustion of the pasture occur less quickly?
 - Requires a theory explaining motivation
- If **some herdspeople have authority to make laws or regulations** regarding use of the pasture, is the pasture exhausted less quickly?
 - Requires a theory about the outcomes of different governance structures
- What **factors make it more or less likely that other herdspeople will respect those laws?**
 - Requires a theory explaining respect for laws

Example research questions

- Are **some rules more effective than others** at slowing the degradation of the pasture? What are **the key differences** that appear to affect efficacy?
 - Requires a theory about rule efficacy
- Is **sustainable pasture use more likely in some communities, regions, or states than in others?** What aspects of those areas contribute to more sustainable use?
 - Requires a theory about factors affecting sustainable use

Example research questions

- Are the **rules managing the pasture transparent** enough that decision-makers can be held **accountable**?
 - Requires a theory about how government accountability is achieved
- How do **changes made at the collective choice level** (e.g., about which participants can hold positions of authority in the community) **affect action at the operational level** (e.g., rules made about number of cows on the pasture)?
 - Requires a theory about power dynamics in vertical federalism

Example study: Groundwater

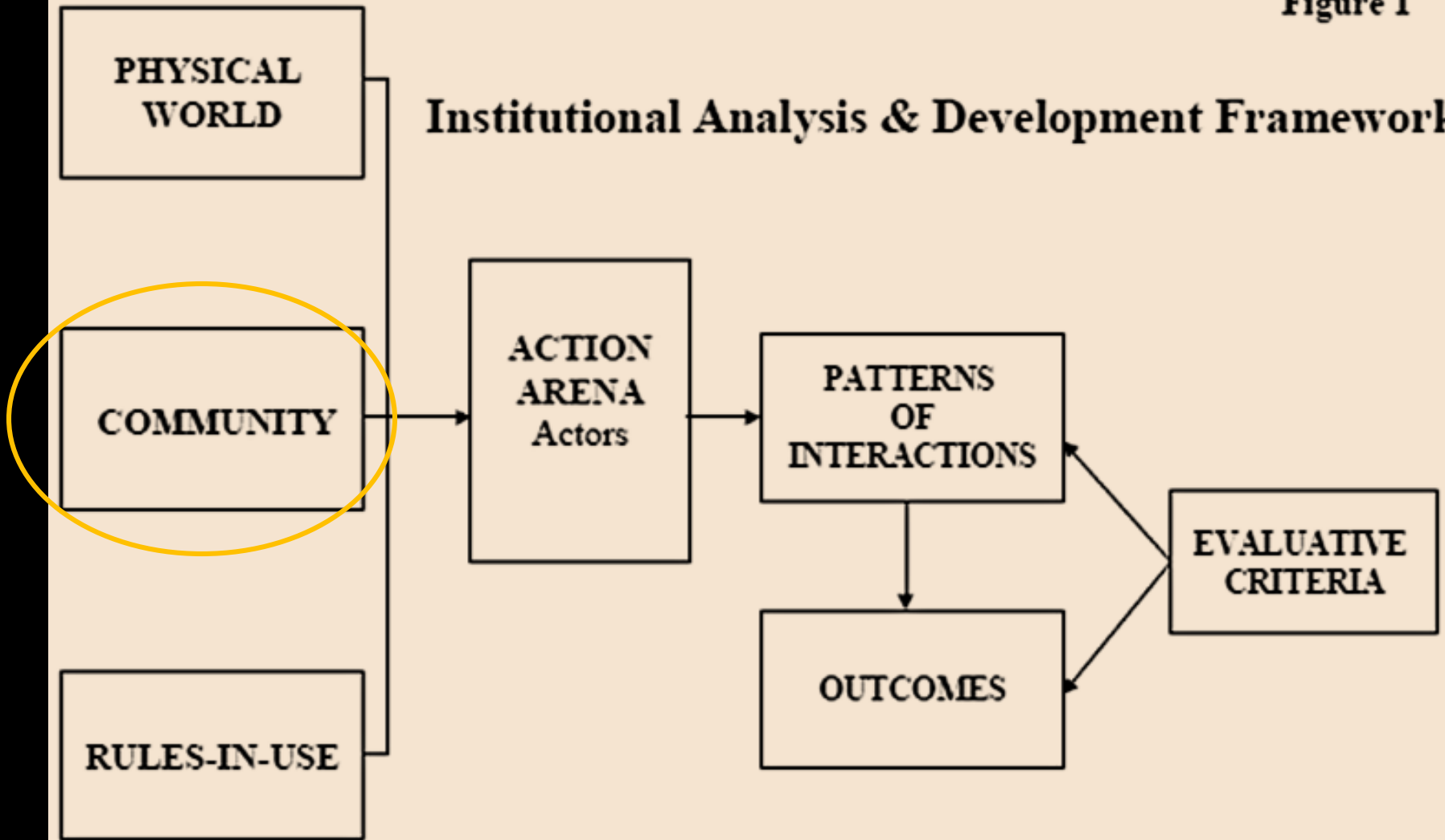


RQ: Why have some groundwater basins in California been **managed relatively successfully**, while others have not?

H: When comparing basins, those that have **greater homogeneity of uses** are more likely to **be managed sustainably** than those with **less homogeneity of uses**.

Figure 1

Institutional Analysis & Development Framework



Example study: Groundwater

Theory: Transaction costs theorizing from economics

When **community members share homogeneous preferences**, they will be more likely to manage a resource sustainably. Shared preferences facilitate agreement about desired outcomes and mechanisms for achieving them; the costs associated with bargaining are low. Conversely, when users have divergent preferences about resource use, they are more likely to experience disagreement about management choices, potentially leading to conflict, non-action, delays, and other problems.

Example study: Groundwater

- **Unit of analysis:** Groundwater basins
- Variables . . .
 - **IV:** Extent of homogeneity of groundwater uses
 - **DV:** Extent of sustainable management
- **IV:** Homogeneity of (preferences for) use
 - Measure by counting the number of agricultural, residential, commercial, and other land parcels in the basin. (These data can be obtained from the county assessor's office.) Create an index that is larger when the diversity of land uses is larger, and smaller when there is less diversity.

Example study: Groundwater

- DV: Sustainable management
 - We could develop a **suite of indicators** of sustainable management, then incorporate into an index (like 1-4). Maybe . . .
 - Number of wells that have gone dry
 - Extent and frequency of overdraft
 - Extent of land subsidence
 - Number and severity of water quality violations
 - Assess these over a time period that matches the time period for which we develop the land (water) use indicator, potentially 5-10 years.

Example study: Groundwater

- Test:
 - Gather data on land use and sustainable management for the **more than 130 basins in CA**.
 - Collect data on **other variables that might influence sustainable management**, such as whether local or regional agencies are involved in managing groundwater, the poverty level in the basin, the population size, the water use intensity of crops grown by area agriculture, and more.

Example study: Groundwater

- Test:
 - Use **multivariate regression** to evaluate the impact of land use diversity on sustainable management of a basin, e.g.:
 - Basin sustainability score = fcn(land/water use diversity + population size + % pop below poverty line + . . .)
 - Carefully consider potential sources of **systematic and random error**. Revise approach as necessary.

Example study: Groundwater

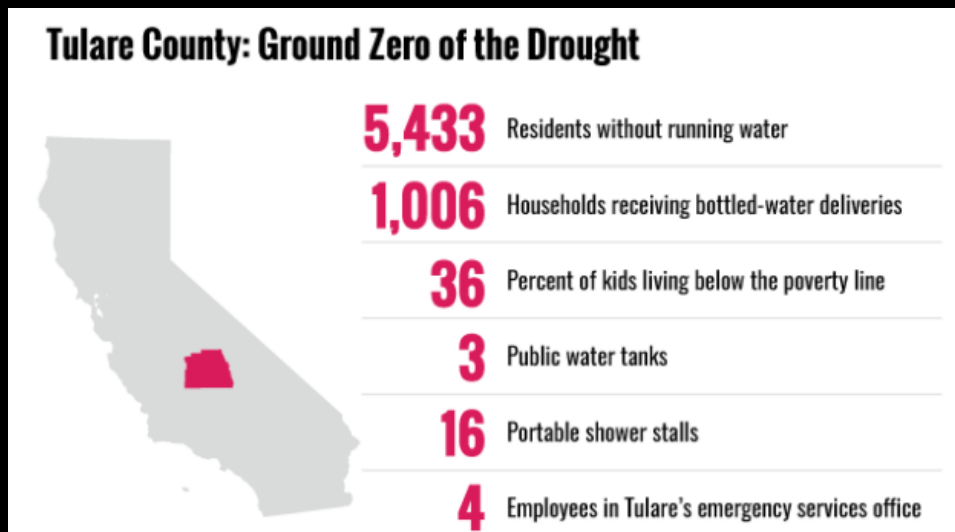
- Policy implications
 - **If we find support for the hypothesis**, indicating that homogeneity of preferences for land use can help predict sustainable management of groundwater, then policymakers could use policy mechanisms (e.g., taxes, subsidies) to promote more homogeneity in land use.
 - **If we do not find support for the hypothesis**, we conclude that encouraging homogeneity of land use is not a useful tool for policymakers who want to promote sustainable groundwater management.

In your groups . . .

- Answer worksheet questions 10 and 11.

Example 2: Groundwater again

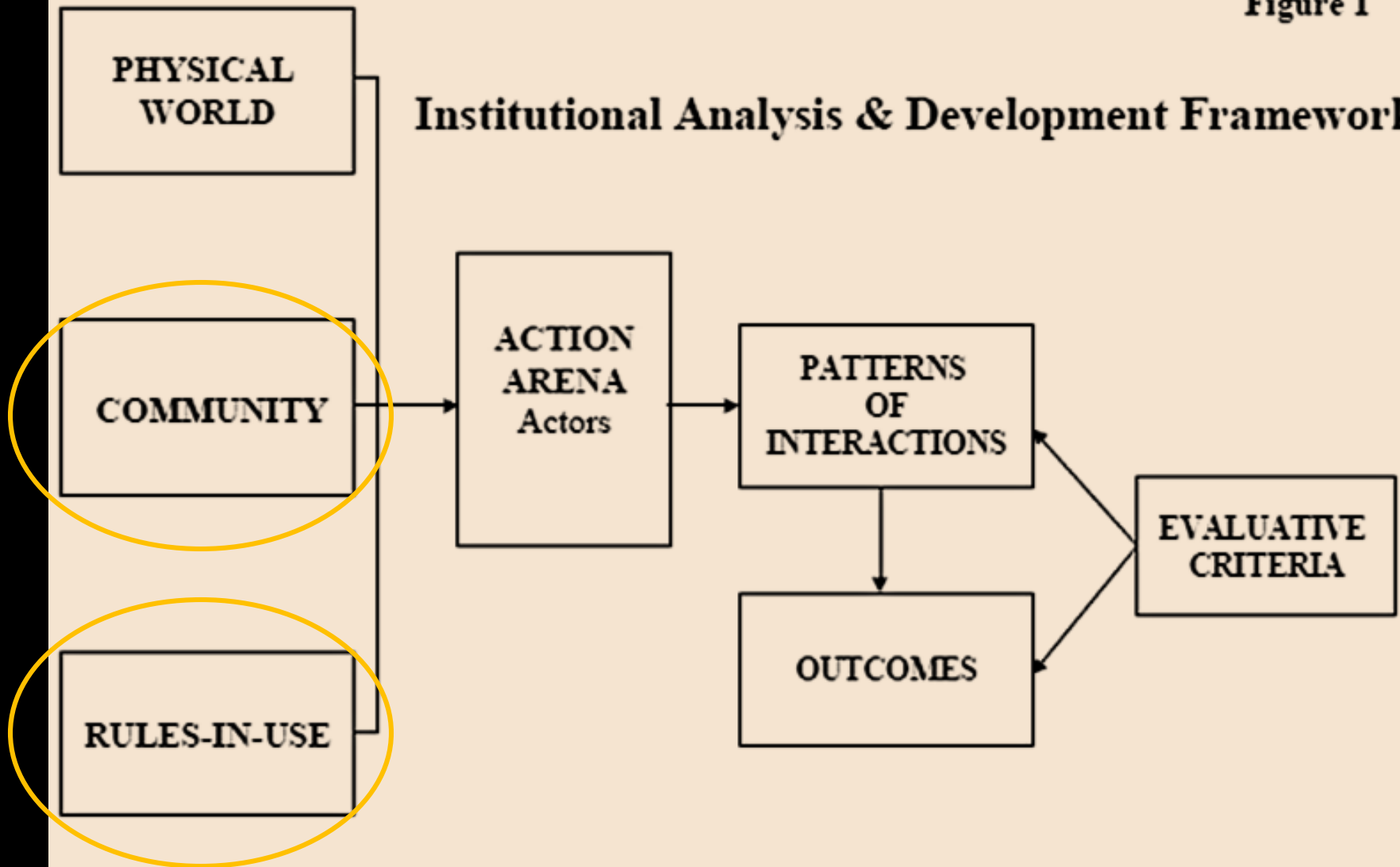
RQ: Why did some Tulare communities that “went dry” in the drought **receive more water assistance** from the county than others?



H: In comparing drought-affected communities, those with **larger proportions of dependents** received less water assistance than those with smaller proportions.

Figure 1

Institutional Analysis & Development Framework



Source: Ostrom, Gardner, and Walker, 1994

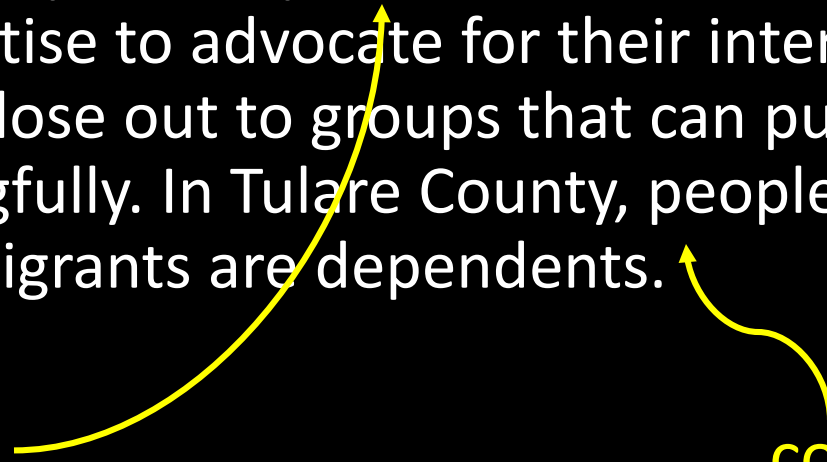
Example 2: Groundwater

Theory: Social construction (SC)

SC theory suggests that dependents receive fewer real policy benefits than advantaged or contenders, since rewarding dependents offers decision-makers relatively little political capital. Dependents often lack the resources, time, or expertise to advocate for their interests, and consequently lose out to groups that can pursue advocacy more meaningfully. In Tulare County, people with less income and migrants are dependents.

rules-in-use

community



Example 2: Groundwater

- **Unit of analysis:** Tulare County communities
- Operationalizing variables . . .
 - **IV:** Proportion of residents who are dependents
 - **DV:** Number of water storage tanks established by the county in a given community (to make up for dry wells)
- **IV:** Proportion dependent
 - Construct an index variable that accounts for citizen wealth and migrant status of people in each community. Maybe also homeownership.

Example 2: Groundwater

- Test:
 - Gather data from the county on **number of water storage tanks** installed in the 62 cities and census designated places in the county (DV).
 - Collect data from the U.S. Census on average median and per capita income in each location, and potentially homeownership. Obtain estimates of the number of migrants (see http://www.ppic.org/main/publication_show.asp?i=258) in each location.

Example 2: Groundwater

- Test:
 - Determine if there is a **statistically significant correlation** between the number of water tanks and proportion dependent residents.
 - What might be some sources of **random error** in variable construction and/or data collection? Of **systematic error**?

Example 2: Groundwater

- Policy implications
 - **If we find support for the hypothesis**, indicating that areas where there are more dependents tend to receive fewer water assistance benefits, policymakers and implementers can do more outreach in these areas to make people aware of the water assistance program and their eligibility. Policymakers can also examine their procedures and programs to see if they lead to bias against dependents.

Example 2: Groundwater

- Policy implications
 - **If we do not find support for the hypothesis**, we conclude that either we have not measured dependent status correctly (perhaps poorer people and migrants are not considered dependents by society), or that in this case, the social construction of the target population does not appear to affect the extent of water assistance benefits people receive. In either case, we'd want to do additional research to (a) address the first question and (b) explore why social construction might not matter here.

Questions?