DOWNLOAD PDF MANAGING COMMON POOL GROUNDWATER RESOURCES

Chapter 1 : Elinor Ostrom's 8 Principles for Managing A Commmons | On the Commons

In The Challenge of Common-Pool Resources, Ostrom makes the case for adaptive governance as a method for the management of common-pool resources. Adaptive governance is suited to dealing with problems that are complex, uncertain and fragmented, [5] as is the management of common-pool resources.

Common CPR examples include fisheries, forests, irrigation systems, and pastures. The difficulty of exclusion means that if some individuals invest in protecting a CPR, others might still benefit without contributing to its management. Individuals may not have an incentive to curtail their use of a CPR because the cost of their use of a CPR is shared by all users. At the same time, CPR scholars have found many examples that suggest that people are capable of averting these tragedies and sustaining CPRs. Scholars have devoted considerable attention to understanding the nature of CPR dilemmas, the conditions under which people are able to work together to address them, and what makes the rules or institutions that people devise in managing CPRs successful. Examples of institutional responses include resource privatization or private property rights, government management, and community management through collective action, among others see the CPR Dilemma Solutions section. The variety of disciplines that contribute to the CPR literature include, but are not limited to, anthropology, agriculture, biology, ecology, engineering, law, political science, public administration, rural sociology, and sociology. A research program that has become well known for its multidisciplinary and expansive research on CPRs centers on the scholarship of Dr. Elinor Ostrom, who won the Nobel Prize in Economic Sciences for her research on how local communities around the world have devised institutions to sustainably manage CPRs. The bulk of initial CPR research from the Ostrom school and others focused on a limited set of smaller, often community managed, CPRs, such as a pasture, groundwater basin, or local fishery see the Established CPR Literature section. In the decades of vigorous research that has ensued, scholars have explored the wide variation that exists among CPR settings and contexts, including methodological and empirical challenges and opportunities for testing and advancing theory in these diverse settings. The methods employed in CPR studies see the Methods section include case studies, game theory, field experiments, and large-n statistical analyses. Additionally, researchers have grappled with issues of large and interconnected CPRs, such as marine commons and interstate river basins see the Scale and Complexity section , and they have begun to test the applicability of established CPR theory to new contexts, such as the information commons see the Nontraditional CPR Applications section. Although the works cited in this article are not an exhaustive list of all CPR publications, they illustrate the variety and promise of the CPR literature, from established and classic works to recent and emerging CPR applications. General Overviews A diverse literature has provided overviews of CPRs and the management, governance, and collective action challenges associated with them. The National Research Council NRC report is one of the first to bring together a diverse array of empirical evidence from numerous scholars challenging some of the initial assumptions of the tragedy of the commons laid out by Hardin. It was also the first to begin to develop a more comprehensive picture of the alternative institutional and governance approaches to addressing commons problems internationally, such as self-governance arrangements. This is the same year that a seminal book titled Governing the Commons Ostrom , cited under Books and Edited Volumes was published. More recent work cited here, including Schlager and Ostrom , present useful summaries of theories of CPR management and institutional design originally postulated in Governing the Commons. Recent books see de Moor and Wall summarized in Books and Edited Volumes have added historical perspectives to the literature, which complement analyses of more contemporary CPR settings. The struggle to govern the commons. McCay, and James M. The tragedy of the commons: The nature of common-pool resource problems. Rationality and Society 2. Specifies the necessary conditions that result in a CPR dilemma, demonstrates how game-theoretic concepts apply to CPR dilemmas, and presents evidence from lab experiments and field research to show how the framework can be applied. The tragedy of the commons. It defines commons dilemmas, explores

alternative institutional arrangements for sustaining the commons, presents evidence on case studies in diverse resource settings from around the globe, and offers propositions for successful commons institutions. The challenge of common-pool resources. Science and Policy for Sustainable Development In Environmental governance reconsidered. Edited by Robert F. Users without a subscription are not able to see the full content on this page. Please subscribe or login. How to Subscribe Oxford Bibliographies Online is available by subscription and perpetual access to institutions. For more information or to contact an Oxford Sales Representative click here.

DOWNLOAD PDF MANAGING COMMON POOL GROUNDWATER RESOURCES

Chapter 2 : Water resource management - Wikipedia

Managing Common Pool Groundwater Resources and millions of other books are available for Amazon Kindle. Learn more Enter your mobile number or email address below and we'll send you a link to download the free Kindle App.

Public goods are simultaneously characterised by non-exclusivity implying that resources can be exploited by anyone since nobody has an exclusive right and indivisibility implying that the use of part of the resource by one individual or group does not subtract from the amount available to others. The latter are held by individuals and firms creating the basis for the functioning of markets. Common and Stagl consider that common-property resources include cases where rights are held by communities of individuals, including the government and non-government organisations, and their use can be regulated in a variety of ways by a variety of institutions. Sometimes, property rights exist for common-pool resources, but it is so costly to enforce them that they are not exercised. In this case, the common-pool resource has a size or characteristics that make it costly, although not impossible, to exclude potential beneficiaries from obtaining benefits from their use. However, besides the property rights enforcement constraints, it must be recognised that not everything is subject to property rights of some kind. For this reason, we need to consider also open-access regimes where no one owns or exercises control over the resources. Individuals making decisions on the basis of benefits and costs to themselves will ignore the common-property externalities they inflict on others. Each individual has no incentive to reduce the rate of use and conserve the resource. Open-access resources may be overexploited but common property resources need not suffer overuse and their allocation can be regulated in a way that avoids tragedy. In synthesis, the shared elements in the definition of common-pool resources include 1 partial or total non-exclusivity, implying that resources can be exploited by any one individual or community since nobody individually has an exclusive right, and 2 divisibility, implying that the use of part of the resource by one individual or group subtracts from the amount available to others. Fisheries and forests are examples of two common-pool resources that are currently of great concern. Part of the reason for the mixed results is that most common-pool resources differ vastly from one another. Differences can be found, for example, in resource characteristics, socio-economic and cultural contexts and scales. However, granting due importance to management systems and property rights, it must be said that the main driving force of exhaustion of resources is population and economic growth. Since the problem definition is a critical phase in the policy-making process, it is essential to carefully and transparently consider the different stakeholders, their knowledge of the empirical context, their institutions, beliefs, myths and ideas. It is essential to promote an effective dialogue to find an adequate policy regime. Ostrom maintains that the advocacy of a single idealised solution for all common-pool resources has been a key part of the problem instead of the solution. She also considers that many of the most pressing problems future generations will face are on a global scale and that establishing effective governance arrangements on this scale has proved to be more difficult than on a local one. Understanding Conflict over Common Pool Resources. Science, , Cambridge University Press, Cambridge. Environment, 50 4

DOWNLOAD PDF MANAGING COMMON POOL GROUNDWATER RESOURCES

Chapter 3 : Common-pool resources

Managing Common Pool Groundwater Resources: An International Perspective - Kindle edition by Mary Brentwood, Stephen Robar. Download it once and read it on your Kindle device, PC, phones or tablets.

Overview[edit] Visualisation of the distribution by volume of water on Earth. The entire block comprises 1 million tiny cubes. Of the water resources on Earth only three percent of it is fresh and two-thirds of the freshwater is locked up in ice caps and glaciers. Of the remaining one percent, a fifth is in remote, inaccessible areas and much seasonal rainfall in monsoonal deluges and floods cannot easily be used. As time advances, water is becoming scarcer and having access to clean, safe, drinking water is limited among countries. At present only about 0. Due to the small percentage of water remaining, optimizing the fresh water we have left from natural resources has been a continuous difficulty in several locations worldwide. Much effort in water resource management is directed at optimizing the use of water and in minimizing the environmental impact of water use on the natural environment. The observation of water as an integral part of the ecosystem is based on integrated water resource management, where the quantity and quality of the ecosystem help to determine the nature of the natural resources. As a limited resource, water supply sometimes supposes a challenge. This project faced a difficult task for developing areas: The DESAFIO engineers worked on a water treatment system run with solar power and filters which provides safe water to a very poor community in the state of Minas Gerais. For water as a resource, this is particularly difficult since sources of water can cross many national boundaries and the uses of water include many that are difficult to assign financial value to and may also be difficult to manage in conventional terms. Examples include rare species or ecosystems or the very long term value of ancient groundwater reserves. An assessment of water resource management in agriculture was conducted in by the International Water Management Institute in Sri Lanka to see if the world had sufficient water to provide food for its growing population or not. Regarding food production, the World Bank targets agricultural food production and water resource management as an increasingly global issue that is fostering an important and growing debate. To avoid a global water crisis, farmers will have to strive to increase productivity to meet growing demands for food, while industry and cities find ways to use water more efficiently. This rapid urbanization happens worldwide but mostly in new rising economies and developing countries. Cities in Africa and Asia are growing fastest with 28 out of 39 megacities a city or urban area with more than 10 million inhabitants worldwide in these developing nations. With developing economies water scarcity is a very common and very prevalent issue. As cities offer the best opportunities for selling produce, farmers often have no alternative to using polluted water to irrigate their crops. Wastewater from cities can contain a mixture of pollutants. There is usually wastewater from kitchens and toilets along with rainwater runoff. This means that the water usually contains excessive levels of nutrients and salts, as well as a wide range of pathogens. Heavy metals may also be present, along with traces of antibiotics and endocrine disruptors , such as oestrogens. Developing world countries tend to have the lowest levels of wastewater treatment. Often, the water that farmers use for irrigating crops is contaminated with pathogens from sewage. Common illnesses include diarrhoea , which kills 1. Many cholera outbreaks are also related to the reuse of poorly treated wastewater. Actions that reduce or remove contamination, therefore, have the potential to save a large number of lives and improve livelihoods. This involves analysing the food production process from growing crops to selling them in markets and eating them, then considering where it might be possible to create a barrier against contamination. The UDSS is then able to analyse and show homeowners which of their appliances are using the most water, and which behaviour or habits of the households are not encouraged in order to reduce the water usage, rather than simply giving a total usage figure for the whole property, which will allow people to manage their consumption more economically. The UDSS is based on university research in the field of Management Science , at Loughborough University School of Business and Economics, particularly Decision Support System in household water benchmarking, led by Dr Lili Yang , Reader [15]

Future of water resources[edit] One of the biggest concerns for our water-based resources in the future is the sustainability of the current and even future water resource allocation. Finding a balance between what is needed by humans and what is needed in the environment is an important step in the sustainability of water resources. Attempts to create sustainable freshwater systems have been seen on a national level in countries such as Australia , and such commitment to the environment could set a model for the rest of the world. The field of water resources management will have to continue to adapt to the current and future issues facing the allocation of water. With the growing uncertainties of global climate change and the long term impacts of management actions,the decision-making will be even more difficult. It is likely that ongoing climate change will lead to situations that have not been encountered. As a result, alternative management strategies are sought for in order to avoid setbacks in the allocation of water resources.

DOWNLOAD PDF MANAGING COMMON POOL GROUNDWATER RESOURCES

Chapter 4 : Common Pool Resource (CPR)

In spite of the fact that groundwater resources play an increasingly central role in the economic, political, and environmental dynamics of the world's countries and regions, say Brentwood Read more.

In order to maintain the resources, protocols coordinate strategies to maintain the resource as a common property instead of dividing it up into parcels of private property. Common property systems typically protect the core resource and allocate the fringe resources through complex community norms of consensus decision-making. Setting the limits too high would lead to overuse and eventually to the destruction of the core resource while setting the limits too low would unnecessarily reduce the benefits obtained by the users. In common property systems, access to the resource is not free and common-pool resources are not public goods. While there is relatively free but monitored access to the resource system for community members, there are mechanisms in place which allow the community to exclude outsiders from using its resource. Thus, in a common property state, a common-pool resource appears as a private good to an outsider and as a common good to an insider of the community. The resource units withdrawn from the system are typically owned individually by the appropriators. A common property good is rivaled in consumption. Analysing the design of long-enduring CPR institutions, Elinor Ostrom identified eight design principles which are prerequisites for a stable CPR arrangement: Organisation in the form of multiple layers of nested enterprises, with small, local CPRs at their bases. Common property systems typically function at a local level to prevent the overexploitation of a resource system from which fringe units can be extracted. In some cases, government regulations combined with tradable environmental allowances TEAs are used successfully to prevent excessive pollution, whereas in other cases â€" especially in the absence of a unique government being able to set limits and monitor economic activities â€" excessive use or pollution continue. Adaptive governance[edit] The management of common-pool resources is highly dependent upon the type of resource involved. An effective strategy at one location, or of one particular resource, may not be necessarily appropriate for another. In The Challenge of Common-Pool Resources, Ostrom makes the case for adaptive governance as a method for the management of common-pool resources. Adaptive governance is suited to dealing with problems that are complex, uncertain and fragmented, [5] as is the management of common-pool resources. Ostrom outlines five basic protocol requirements for achieving adaptive governance. Achieving accurate and relevant information, by focusing on the creation and use of timely scientific knowledge on the part of both the managers and the users of the resource Dealing with conflict, acknowledging the fact that conflicts will occur, and having systems in place to discover and resolve them as quickly as possible Enhancing rule compliance, through creating responsibility for the users of a resource to monitor usage Providing infrastructure, that is flexible over time, both to aid internal operations and create links to other resources Encouraging adaption and change to address errors and cope with new developments Open access resources[edit] This section is about non-excludable resources in economics. It is not to be confused with Open access publishing of academic works. In economics, open access resources are, for the most part, rivalrous, non-excludable goods. This makes them similar to common goods during times of prosperity. Unlike many common goods, open access goods require little oversight or may be difficult to restrict access. An open access system is set up to continue the ideals of an open access resource in which everything is up for grabs, e. This occurred during the expansion of the U. Since fish are an open access resource, it is relatively simple to fish and profit. If fishing becomes profitable, there will be more fishers and fewer fish. Fewer fish lead to higher prices which will lead again to more fishers, as well as lower reproduction of fish. This is a negative externality and an example of problems that arise with open access goods.

Chapter 5 : Common Pool Resources - Environmental Science - Oxford Bibliographies

Managing Common Pool Groundwater Resources An International Perspective. by Mary Brentwood, Stephen F. Robar, ed. Surveys the state of international groundwater resources, management, and policy.

From the Wikipedia at http: Unlike pure public goods, common pool resources face problems of congestion or overuse, because it is subtractable. The term "common property regime" refers to a particular social arrangement regulating the preservation, maintenance, and consumption of a common-pool resource. The use of the term "common property resource" to designate a type of good has been criticised, as common-pool resources are not necessarily governed by common property regimes. The solution to the problems associated with common-pool resources is not necessarily private property, though. Examples of CPRs include groundwater basins, fisheries, forests, grazing ranges, and irrigation systems in which property rights--or the ability to uphold such rights--do not allow for privatization. The majority of the CPR research to date has been in the areas of fisheries, forests, grazing systems, wildlife, water resources, irrigation systems, agriculture, land tenure and use, social organization, theory social dilemmas, game theory, experimental economics, etc. The common pool resource CPR can be a fishery, a grazing ground, the Internet, the electromagnetic spectrum, a park, the air, scientific knowledge. The institution can be a body of informal norms that are disseminated by word of mouth, enforced by gossip or religious stricture, and passed from one generation to another, or a body of formal written laws that are enforced by state agencies, or a marketplace that treats the resource as private property, or a mixture of these forms. In the real world of fishing grounds and wireless competition, CPR institutions that succeed are those that survive, and those that fail sometimes cause the resource to disappear e. Or, and this is where confusion persists in the literature, there are resources over which no property rights have been recognized. The latter situation is one of open access res nullius. Property Rights and Public Policy. This is not the place to assess their empirical studies cf. Common property regimes are "where the members of a clearly demarcated group have a legal right to exclude nonmembers of that group from using a resource. Open access regimes res nullius -including the classic cases of the open seas and the atmosphere-have long been considered in legal doctrine as involving no limits on who is authorized to use a resource" Ostrom On the basis of this distinction, common property and open access regimes are mutually exclusive and anyone who had as their political ideal the creation of an open access regime would not be a supporter of the commons. The second important distinction is between a common-pool resource which is a thing or stuff and a common property regime which is a set of social relations. A common-pool resource is such that a "it is costly to exclude individuals from using the good either through physical barriers or legal instruments and b the benefits consumed by one individual subtract from the benefits available to others" Ostrom Because of its two defining characteristics, a common-pool resource is subject to problems of congestion, overuse and potential destruction. Access to, withdrawal from, management and ownership of such a resource can be in the form of a common property regime, but it need not be. Much of the work of the neo-Hardinians has been to study what attributes of common-pool resources that "are conducive to the use of communal proprietorship or ownership" and what attributes of common-pool resources that "are conducive to individual rights to withdrawal, management, exclusion and alienation" Ostrom The neo-Hardinians, however, seem to be less interested in the fact that not all common property regimes involve common-pool resources. On the contrary, when we examine the history of common property regimes, we must conclude that many have been based on non-common-pool resources. For example, money income, personal belongings, literary texts, and even children have been communalized. On the basis of the history of common property regimes it is difficult to decide what types of goods are "conducive" to private property and what kinds of goods are "conducive" to common property. The third important distinction is between common-pool resources e. They share one characteristic, i. But they also differ in another characteristic, for a common-pool resource like a fishery is reduced when something of value like a particular fish is withdrawn from it while a public good like

knowledge of the Second Law of Thermodynamics is not diminished when still another person uses it to construct a new engine. These property rights are the following. First, access is the right to enter and receive non-subtractive benefits from the use of the good in the common pool. Second, withdrawal is the right to remove resources from the common pool. Third, management is the right to set any use procedures and transformation of the good. Fourth, exclusion is the right to determine and select which unit can access and transfer rights of the good. Attributes and rights of the nature of goods form the traits that identify them. Finally, transacting units have terms of operation such as technology, endowment of capital and nature of stakeholders that reflect the degree of collection, status and organization of the unit and these determine the different incentives for seeking the bundle of traits of goods more appropriate for them to produce and distribute.

Chapter 6 : Common-pool resource - Wikipedia

Over-appropriation and degradation of groundwater can result from lack of recognition of, and inappropriate arrangements for, managing groundwater as a common-pool resource.

Chapter 7 : Common Pool Resource - P2P Foundation

The adequate management of a common-pool resource requires a deep understanding about the causes of (potential/existing) conflict in resource use. Adams et al. () emphasise that conflicts over the management of common-pool resources are not simply material, as they also depend on the perceptions of the protagonists.