**Review: The Challenge of the Common Pool Resources**

**Title** : The Challenge of Common Pool Resources

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**Introduction**
Elinor Ostrom, born August 7, 1933, is an American political economist who has extremely commitment for common pool resources in the world. As author a famous book which is entitle “Governing Our Common: the Evolution of Institutions for Collective Action” and it was published by Cambridge University Press on 1990. She has much experiences in her professional activities as scholar and involved in many scientific organization. She also got many honorarium from differ institution and awarded the 2009 Nobel Memorial Prize in Economic Sciences, which she shared with Oliver E. Williamson, for “her analysis of economic governance, especially the commons. She had published a lot of paper in vary journal and one most important one with title “The Challenge of Common-Pool Resources which was published by Environment: Science and Policy for Sustainable Development Journal Volume 50 on 2008.

This paper consists of nine parts to figure how interesting to manage common-pool resources in the future. She had been described clearly what the challenge of common pool resources is, why overharvesting of ocean fisheries and forest resources have continued now a day. And then, she had also mentioned what is international regime for sustainable development and what have we learned since 1987. In addition, She was noticed that no cure all for our common resources. Finally, she suggested how to achieve adaptive governance as recommendation for managing common resources in the future.

Moreover, the author has proposed any questions, as follow: (1) What are the common?; (2) How successful have efforts been to sustain the world’s oceans and forests since the publication of the Brundtlan report?; (3) What role do international regimes play in a sustainable future?; and (4) What lessons have scholars learned about adaptive governance of common-pool resources over the past 20 years that can be applied to the next 20 years and beyond? These questions will be as home work for scholars how save and manage our common pool resources for next a decade or two decades in the future.

Summary

This paper had opened a statement to address the reader for reminding about World Commission on Environment and Development (WCED) report, Our Common Future on 1987, including how to address global resources system or common because of most differ vastly from another. However, eventually these were destroyed due to human have failed to halt the tragedy of massive overexploitation
of common resources. Even, establishing effective governance arrangement on global scale has proved to be more difficult than on a local scale. Indeed, the next generation will face are more pressing problem on global scale.

Therefore, this paper also was mentioned, there were pessimistic and optimistic perception due to Clark (1997) after a decade WCED released the report. Pessimistic perception side, many disappointments, resignations, and increased cynicism were expressed at the international meetings held to evaluate progress toward sustainable development. On the other hand, some of them require a shift in perspective from the current short-term, global view of international environmental diplomacy to longer term and more local views of sustainable development.

So that, United Nation through Secretary General, Kofi Anan, initiated The Millennium Ecosystem Assessment (MEA) in 2000. Based on the massive review from 2001-2005, MEA announced their finding in 2005 which are two major finding. First major finding was that the change to ecosystems during the past half-century has been more rapid than any comparable period in human history. The second major finding was that while these changes have led to substantial gains in economic development and human well-being, the gains have been achieved at growing costs in the form of the degradation of many ecosystem services, increased risks of non linear changes, and the exacerbation of poverty for some groups of people. Thus, the most recent worldwide review of our common future warned that major changes threatened our future.

According to challenge, and then the author explain about the concept of common pool resources, continued overharvesting both ocean fisheries and forest resources, international regime for sustainable development, what is lesson learned since 1987, no cure-alls, achieving adaptive governance, and the future of the common. As a summaries each sub part can be described as follow.

The common refer to systems, such as knowledge and the digital world, in which it is difficult to limit access, but one person’s use does not subtract a finite quantity from another’s use. In contrast, common-pool resources are sufficiently large that it is difficult, but not impossible, to define recognized users and exclude other users altogether.
As WCED stated in chapter 10 that the common may be governed and managed by a wide variety of institution arrangements that can be roughly grouped as governmental, private, or community ownership. In addition, a number of them are co managed by communities working with government. Finally, common pool resources that anyone can enter and/or harvest are likely to be overharvested and potentially destroyed as stated by Garret Hardin, ecologist, on 1968 in his classical article “the Tragedy of common”. And then, the author continued to explain why overharvested both of ocean fisheries and forest in previous decade and they will be big challenge in the future.

Ocean fisheries resources situation has not improved in the 20 years since the report was issued; even though in around the world the was double in size from 70 million tons in 1979 to 141 million tons in 2005. Fishery after WCED issued report has been subject to massive overfishing, including the tuna and whale fisheries in the Pacific, the cod fishery in the Atlantic, and the lobster and conch fisheries in the Caribbean. Indeed, establishing Exclusive Economic Zone (EEZs) that extend to 200 nautical mile has encourage many government subsidized an expansion of their own national fleets, leading to increased rather than decreased fishing in coastal regions. National governments also tended to use relatively crude models of fishery dynamics in the early years of their responsibilities and had insufficient data to assess stocks. It was also impact for overharvested of ocean fisheries.

Many government have also tried to evolved quota system to improve fish stock through national policy and action, for example in Canada since 1992 and European Union in 2002 for Western Baltic Cod Fisheries; however, had remained 30 % over the level recommended by International for the Exploitation of the Sea (ICES). A Team lead by Fikret Berkes of the University of Manitoba’s Natural Resources Institute documents another harvesting process practiced by “roving bandits” was reported.

Therefore, in several countries have retained or developed management system to improve fish stock or other sea species. Local wisdom system in Phillipines for instance had successful increased of egg turtle in The Turtle Island of the Phillipinnes as Raul P Lejano and Helen Ingram Report (2007). Through Pawikan Conservation Project can steadily rose percentage of turtle in the mid 1980s to 1990s and no conflict among the participants. Tragically, national officials did not recognize local rules when they passed the Wildlife Resources Conservation and Protection Act in 2001. And very soon after the law was passed, a number of egg turtle proceeded at an alarming rate and dropped from about 80% to 40% in about one year. This case show when the only government ownership of management
solves the problem of the common without an awareness of local norms, rules, and evolved institutions can lead to disaster.

Another systems which was called Individual Transferable Quota (ITQ) System that have reduced the level of harvesting in key coastal fisheries. It was developed in Canada, New Zealand, and Iceland. As a result, in 1990, the commercial fishers received a revised ITQ based on a proportion of the total catch assigned annually. Over time, the original ITQ system has evolved into a co-management system in which the fishers participate in gathering data and making policies. In addition, In British Columbia, early governmental policies trying to control overfishing of the trawl fishery for ground fish included restricting the number of fishing vessel and the equipment that could be used, as well as assigning total allowable catch (TAC) and fishing trip quotas. In 1995, the fishery was closed, however, due to a major collapse.

Although in several countries have evolved the control system for retaining the fish stock, it was indicated depletion condition. Instead, The Iceland ITQ system appears to have averted the collapse of many valuable species for the Iceland fishery but has been less successful in restoring the Icelandic cod stocks. As a result, the author state that opens access to ocean, compounded by roving bandit and ineffective governance in EEZs, is a major cause of overfishing.

The similar challenges were faced to forest resources as well. Forest resources were not a focus of chapter 10 of the WCED’s report. Therefore, the MEA noted that the global area containing forested land has been cut in half over the past three centuries. They have become major news of recent times, especially given the impact of deforestation on global climate change.

The MEA’s report state that forests have effectively disappeared in 25 countries, and another 29 have lost more than 90% of their forest cover. Forest systems are associated with the regulation of 57% of total water runoff. From 1990 to 2000, the global area of temperate forest increased by almost 3 million hectares per year, while deforestation in the tropics occurred at an average rate exceeding 2 million hectares per year over the past two decades.

FAO’s report mentions that the total hectares of forest land have steadily declined
between 1990 and 2005. The only major increases in forested areas have occurred in East Asia, where China has taken aggressive steps to reduce deforestation, and in the Caribbean, where substantial urban migration has led to reforestation of the highland areas of Puerto Rico and the Dominican Republic.

Avoiding deforestation and it’s impact, the author elaborated some policy, strategy and action after WCED report issued. Firstly, extent of government-owned protected areas to protect biodiversity and reduce deforestation. Second, designated protected areas for conserving the world’s forests. In addition, The International Union for Conservation of Nature (IUCN) estimates that about 10–12 percent of the world’s forested lands are already in protected areas, and the Food and Agriculture Organization (FAO) of the United Nations’ Global Forest Assessment estimates that 479 million hectares are inside protected area.

Thirdly, extending private ownership of a common pool resource is an assured method for long-term sustainability, private ownership of forest; however, it does not guarantee long term protection. And fourth, payment for environmental services (PES) for protecting biodiversity and forests. However, all policy, strategy and action that are good in theory, working out arrangements that actually achieve both protection and increased income to the world’s poor residents has been difficult.

As known, not only ocean and forest resources have attend by international regime development but also another common such as cross-state rivers and lake pollution, transmission of air pollutants across long distances, and pressures to use outer space and the North and South Poles for imperial and commercial purposes. They have also challenged scholars and public officials to create international regimes for sustainable uses of these diverse commons. For instance, the Montreal Protocol on stratospheric ozone, which was signed in 1987. One of the largest regimes in geographic scope is the European Union Emission Trading Scheme, which is a cap-and-trade program that sets an initial upper limit on emissions levels while assigning tradable property rights to a firm for this limit. In addition, many voluntary programs have been established on multiple scales including “Earth Atmospheric Trust” which has proposed by Peter Barnes of the Tomales Bay Institute and Colleague. This idea need to be more serious to develop.

So, after two decade WCED report issued, it should be congratulated because it can be as lesson learned for stimulating an essential dialogue among scholars, public
officials, nongovernmental organizations, and citizens about strategies for achieving sustainable development. Another lesson learned is wide dissemination which is that simple panaceas offered for solving problems related to the commons whether they are for government, private, or community ownership—may work in some settings but fail in others. Moreover, scholars have learned that ecosystems are diverse, complex, and uncertain and sustainable management requires substantial investment in acquiring accurate data to learn more about patterns of interaction and adapt policies over time that are better fitted to particular systems. And then, arrangement policy has to fit with local culture and institutional environment of those who depend on ecosystems for their livelihood. Finally, Effective monitoring by officials and users is an essential ingredient of sustainable common-pool resource institutions. It will be due to set up as depending on ecological as well as social variables.

According to various lesson learned from the Brundtland report, Garrett Hardin’s classic article, and the extensive research undertaken by scholars from multiple disciplines related to the study of common-pool resources on multiple scales. Many scholars now recognize that simple “ideal” solutions imposed from the outside can make things worse rather than better. So that, the author and colleague have designed five basic requirements; however, have been identified from extensive multidisciplinary studies of failed and successful regimes for governing diverse commons. These include achieving accurate and relevant information; dealing with conflict; enhancing rule compliance; providing infrastructure; and encourage adaptation and change.

Moreover, the author also suggests to evolve the design principles for governing sustainable resources. The following principles are frequently observed in sustainable institutional regimes, as follow: clearly defined boundaries; proportional equivalence between benefits and costs; collective-choice arrangements; monitoring; graduated sanctions; conflict-resolution mechanisms; minimal recognition of rights to organize; nested enterprises (for resources that are parts of larger systems).

After long journey since 1987 when “Our Common Future” launched. It is needed to develop better tools for analyzing how changes in rules, biophysical structures, and community attributes affect resources over time; be modest in claims to understand these complex systems and our attempts to derive the best answers; be studying fallible human behavior within institutional structures constructed by other fallible humans; should not act as if we know for certain how to achieve sustainable development; recognize our growing capabilities and those of the individuals we
study to experiment with rules, learn from the experiments, and, if the broader institutional and cultural milieu facilitates, gradually improve outcomes so they are sustainable over time; and finally, the global community can apply these lessons, invest in adaptive governance, treasure institutional diversity as much as it treasures biodiversity, and see all policies as experiments that need to be evaluated over time based on new information, we may move toward a more sustainable path.

Discussion

It is important to know what is common pool resources before discussion about the challenge of common pool resources because it is quite divers characteristic if comparison with private and public resources. A common-pool resource (CPR) is a type of good consisting of a natural or human-made resource system whose size or characteristics makes it costly, but not impossible, to exclude potential beneficiaries from obtaining benefits from its use. Unlike pure public goods, common pool resources face problems of congestion or overuse, because they are subtractable.

Common pool resources, common property institution, the common, commoner as well as many term related to these. They share two characteristics with other resources that was mentioned by Dolsek and Ostrom (2002). The first share characteristic is substractability or rivalness, has to do with the idea that what one person harvest from deposits in a resources subtract from the ability of others to do the same. For instance, the tons of fish harvest from water resources by one user are no longer available to others using the same resources. The second share characteristic relates to the cost of excluding potential beneficiaries from access to the resources. It may be able to gain benefits without contributing to the costs of providing, maintaining, and regulating the resources involved.

While Walker and Gardner (1992) state that common-pool resources (CPRs) are defined to be natural or man-made resources in which: (a) yield is subtractable and (b) exclusion is non-trivial (but not necessarily impossible). Examples of CPRs include open-seas fisheries, unfenced grazing range, and groundwater basins.

In operational definition, Dolsek and Ostrom (2002) state that characteristics of
common pool resources have been identified as conducive to successful governance. These characteristics are small size, stable and well-delineated resources boundaries, relatively small negative externalities resulting from resources use, ability of user monitor resources stock and flows, moderate level of resources use, and well understood dynamic of the resources.

In my opinion, either the common pool resources of ocean resources (e.g: fish resources) or terrestrial resources (e.g: forest resources) is vastly differ. It will be different choice option management or governance adaptive to retain the common in sustainable way.

These are resources such as fish stocks or forests to which more than one individual has access, but where each person’s consumption reduces availability of the resource to others. One of the most well-known treatments of the question is Garrett Hardin’s 1968 book *The Tragedy of the Commons*, which describes how overexploitation of common pools was rapidly increasing worldwide. Traditional economists proposed two responses to overexploitation.

The first is privatization with adequate means of measurement and control. This depends on having the necessary technical and financial means to exercise adequate control and may only be feasible if ownership is restricted to a few participants. According to Copeland and Taylor 2009, is that resource characteristics may be identified that lead an institution being eventually governed by one institution or another. Three forces determine success or failure in resource management, such as, the regulator's enforcement power, the extent of harvesting capacity, and the ability of the resource to generate competitive returns without being extinguished. The transition of resource governance from open access to common property to regulated private property is less well understood.

The second is government ownership and a tax on using the resource. Ostrom (2008) describes in his paper entitled “The challenge of common pool resources” that the management carried out by the government is often ineffective.

So that, Ostrom proposed a third solution: retain the resource as common property and let the users create their own system of governance [4] In *Governing the Commons: The Evolution of Institutions for Collective Action*, Ostrom argues that
common property governance doesn’t have to be tragic, and that users themselves can devise rules and enforcement mechanisms that may be better than restrictions imposed by outsiders with little knowledge or understanding of local conditions.

However, now a day the challenge not only ineffective management and roving bandit as Ostrom mentioned [5] but also disaster hit and increasing of population. For example, To rebuild Aceh and Nias was estimated to require Rp 63.9 trillion or US$ 7.1 billion, according to the rate of inflation at that time because of earthquake and tsunami in Aceh on 24 December 2004 [6] including to recovery common pool resources where is located in coastal and small island.

Another challenge is increasing a number of population in world will extend demand of the common pool resources. In 2011, United Nation had issued that a number of world population reach to 7 billion people. Around 2050, the scholar estimation a number of world population will be around 9 billion. Others challenges had mentioned in Rio +20 leaflet such as greenhouse gas emissions continue to rise, and more than a third of all known species could go extinct if climate change continues unchecked; If we are to leave a live able world to our children and grandchildren, the challenges of widespread poverty and environmental destruction need to be tackled now; we will incur far greater costs in the future — including more poverty and instability, and a degraded planet — if we fail to adequately address these critical challenges now.

Good sound from Ostrom paper is suggestion to give opportunity for local institution governance of the common pool resources. It will be a opportunity for revitalization local wisdom toward adaptive governance for managing the common pool resources.


