

**Introduction to Environmental Economics**  
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**Lecture – 11**

**Governing the Commons: The Evolution of Institutions for Collective Action – II**

Hello everyone. We are continuing with the Governing the Commons by Elinor Ostrom. So, in the last class we talked about, what are the context of the self-governance, that are the principles are proposed by the Author Elinor Ostrom.

So, today will be deciding and describing, what are those design principles that is we propounded and by following those designing principles the CPR management can be successful. So, let us discuss those 8 design principles for self-governance of the CPR institutions, which can lead to successful CPR management itself.

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**8 Design Principles for Self-Governing CPR Institutions**

- These principles are essential elements that account for success of CPR institutions in sustain the CPRs:
- 1. **The CPR institutions has clearly-defined boundaries:** individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself.
- 2. **Congruence between appropriation and provision rules and local conditions:** Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labour, material, and/or money.

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So, what are these 8 principles, which must be taken into account? So, for the self-governance mechanism or institutions had to be created for governing the CPR itself. So, the first one is that, the CPR institutions has clearly defined from boundaries any two delineate that what is the boundary of this CPR institutions; that means, when you are saying this clearly defining the boundaries of the CPR institutions, where actually taking to the question, who are the individuals or groups, who can have the right to withdraw the resources or use the resources from a common pool systems.

It must be clearly defined and we need to clear defined the boundaries of this CPR itself design the physical boundary of the CPR beyond which we cannot actually do not have any users right. So, this is the first criteria that for maintaining or for instituting the self-governing institutions for CPR it must be followed.

Then, the second criteria or the second principle that must be followed is congruence between the appropriation and provision rules and local conditions itself; that means, the participants, they must understand or the stakeholders or here we are saying the user groups, or the local community who are appropriating this resources. They must understand the right time for resource extractions, when they can actually extract the resources from this CPR and when we need to deny completely restrict, that we can have in this time, we cannot actually extract any resources. So, the time factors must be taken in to account for the for the harvest or to forbid the harvest.

And, the second who important variable is the place; obviously, the kind of structure the geographical conditions are concerned the place is; obviously, different. So, when time is also important place is also important in harvesting the resources from the common pool resources. It may differ from place to place; we need to take in to account that. And, the participants they must actually understand from the very tradition that, this place is something different than the other places, then we need to choose what is the right time and what is the right place?


And, another variable that must be taken in to account in order to find a congruence between this, this rules, this groups and the local conditions is the technology. What kind of technology is available for monitoring the system or extracting the resources? And, it all depends on the local conditions and the provisioning rules. And, again we need to also talk about the provisioning rules in terms of the labor, in terms of material, or in terms of money, monetary exchange.

So, these are necessary for provisioning rules, that how to provide this resources in which form? So, it is a kind of finding the exchange, the unit of exchange may be in terms of labor, may be in terms of material, or may be in terms of monetary units.

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- 3. **Collective-choice arrangements:** Most individuals affected by the operational rules can participate in modifying the operational rules.
- 4. **Monitoring:** Monitors, who actively audit CPR conditions and appropriator behavior, are accountable to the appropriators or are the appropriators.
- 5. **Graduated sanctions:** Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offence) by other appropriators, by officials accountable to these appropriators, or by both.



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The third principle's that is we talk about is collective choice arrangements. So; that means, we wanted to highlight the operational rules that can participate in modifying the operational rules. So, what is this? That means; obviously, the users they are independent in finding the right kind of operational rules. And, they do how the freedom in modifying the same. If, they are finding that this is this the adjusting operational rule is not actually giving us is not leading us in a system in a in a systematic manner or for a sustainable manner then it can be modified. So, that is the collective choice for arrangements.

So, another criteria or principle is monitoring. Who is monitoring? Who actively audit the CPR conditions those participants must audit the CPR itself the resources and the appropriator behavior. So, the CPR conditions and the users behavior it must be take in to account and they

must be accountable to the appropriators, so, that a kind of monitoring system can happen can occur automatically.


So, the monitors must actively audit the CPR conditions this is the first thing and the second responsibility is that, their right behavior. The kind of behavior, they are displaying for monitoring the CPRs. And, perhaps this is one of the at most priority that must be taken in to account for building the right institutions for self-governance.

So, another principle's we talked about is graduated sanctions. So, what is this? That means, if the members or users they are not behaving appropriately or as per the contracts then; obviously, they must be penalized or their some there should be some kind of sanctions? Who violate the operational rules? That is framed by themselves itself. So, that it will be leading a kind of transparency system and the system of governance will be automatically carried forward.

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- **6. Conflict-resolution mechanisms:** Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.
- **7. Minimal recognition of rights to organize:** The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.
- **For CPRs that are parts of larger systems:**
- **8. Nested enterprises:** Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises (multi faceted interests/boundaries/conditions monitoring etc.).



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So, another role for this successful of self-governance is conflict resolution mechanisms; obviously, in this decision making process. So, for this collective action is concerned will be finding so, many conflicts.

Then, what are these conflict resolutions mechanisms? So; obviously, these are this stakeholders or these are the mechanisms right appropriators by themselves and the officials who are in in responsibility for monitoring the systems. If, there is any kind of conflict among the appropriators or between the appropriators and the officials itself, who carry forward or who monitor or audit the resource itself, then it can be result by frequently contacting with each other. That is a rapid access to low cost local arenas to resolve conflicts among the appropriators or between appropriators and the officials.

Why, we are saying this mechanism is good and it is low cost? Because; obviously, when you are saying that, they are in close proximity. So, this is the first conditions right. And, when the appropriators and the officials, who are in charge of monitoring and auditing, they are in close proximity; that means, the communication will be frequent, there will be no involvement of high transaction cost, or this is the one of the lowest kind of cost will be finding in arranging some kind of meeting, because they all these take will lots the appropriators as well as the officials they are in close proximity. So, this is a right kind of conflict resolutions, mechanisms, since talked about.

So, another guideline or principles we talked about is minimal recognition of rights to organize. So; that means, the rights of the appropriators or users to device their own institutions are not challenges by some external factors or some higher authorities like may be the state. So, here see clearly say that, in this CPR management, government authorities should not be a party. There should not be any external interference, interference in terms of this government authorities and their power. And, the last points we talked about see imagines this CPR to be the part of a larger system if it is so.

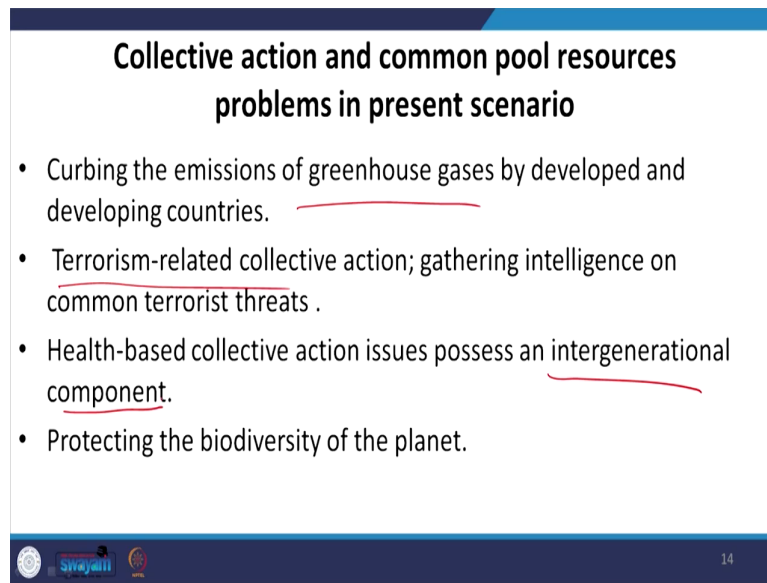
Because, whenever saying this CPR and commons generally we are thinking about a micro scale, may be a locality, may be a villagers management, may be a community management, but when the CPRs are a part of larger system, then there will be involved a multi-faceted interest or many interest group will be involved, there may be involvement of overlapping boundaries.

So, in this case we need to talk about the rules of or the recognition of nested enterprise. We need to find out or identify, who are in this loop, who are those interest group for this common property resources?

So, once you understand and identified this then, we can talk about what are the appropriations, who can appropriate the resources, what kind of provisions rule would be there, what kind of monitoring systems are contract would be there, what would be the enforcement rule and contract what kind of strategy. So, for the conflict resolutions can be

adopted and the kind of governance activities. So, the last points actually talks about a beyond the micro scale may be to a macro level and it may be imagine as a larger system than our this CPR, the traditional CPR.

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**Collective action and common pool resources problems in present scenario**

- Curbing the emissions of greenhouse gases by developed and developing countries.
- Terrorism-related collective action; gathering intelligence on common terrorist threats .
- Health-based collective action issues possess an intergenerational component.
- Protecting the biodiversity of the planet.

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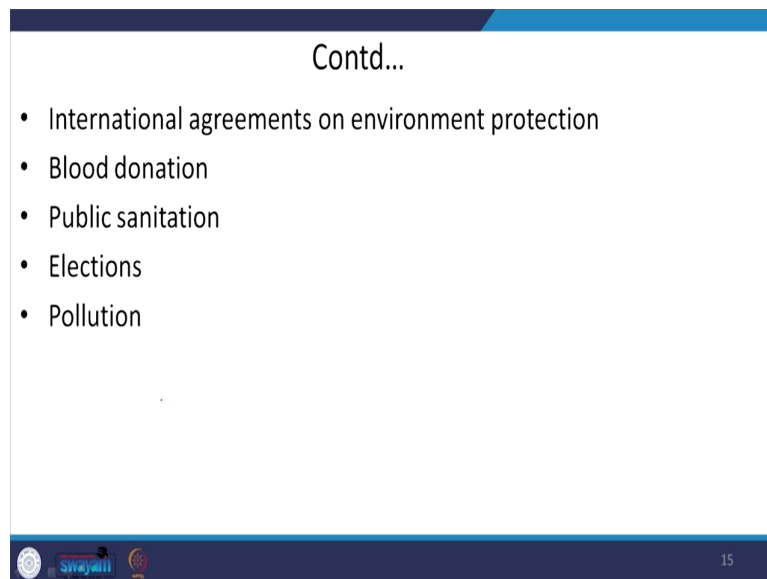
So, after understanding all these all these principles 8 principles that is we talked about for sustainable self-governance of the CPR itself. Now, we need to know that, what is the applications or where we can find this this collective action problems? So, we can find weak collective action problems. So, for the pollution is concerned that is in terms of greenhouses perhaps. So, we can talk about the Kyoto protocol.

And, the kind of stakeholders, the countries, those who are involved about, and we can also talk about the terrorism related collective actions, that who are the countries, who are participating for anti anti-terrorism act, or who are the countries, who actually really want to



address the terrorism related problems. It can also be applicable to the health bars health based collective actions. So, for the intergenerational component is concerned again it may be related to air pollutions, or we can also talk about conservation and preservation of the biodiversity of the planet.

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- International agreements on environment protection
- Blood donation
- Public sanitation
- Elections
- Pollution

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Or the public sanitations blood donations camps and the kind of networks elections. So, these are so, many examples of real life examples we do have. So, for this collective actions problems and the feature of vary collective actions are concerned.

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Some Pros and Cons of Ostrom's Argument

- Her challenge to the first generation theory on commons.
- Her contribution to institutional analysis and second generation theories on common suggesting the possibility of self-governance as a viable solution to collective action problem.
- The second generation theories point to the centrality of trust and reciprocity as the main determinants of collective action.

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After understanding, what is the theory, what can be the examples or what can be the situations, where we can find this this commons are common problem.

Now, we can actually think about the Pros and Cons of Ostrom's argument. Let us talk about the pros first, what is the advantages, or what is the benefits, or what is the new thing? So, we talked about in her argument.

For the first time it is a challenge to the first generational theory of commons, that I that I have already explained, that how since challenge the conventional or adjusting theories, that was that were propounded in 60s, 70s. And, all these major theories like tragedy of the commons, group behavior, and collective action, and prisoner's dilemma. See silent all these theories.

These are known as the first generation theory of the commons. So, this is the positive or the benefit side or advantages of their of our argument.

And, second contributions can be in terms of institutional analysis. So, we talked about the self-governance and the kind of the rules that needs to be met for making these institutions sustainable. So, this is again the part of the institutional schools of thought or highlighting or see contributed for the development of or evolution of the institutional analysis itself. And, also she contributed to the second generation theories on the commons, by suggesting the possibility of self-governance, as viable solution to collective action problem. So, this is the importance of self-governance.


So, in this second generations theories, it points out this theories, they point out the centrality of trust and reciprocity as the main determinants of collective actions. In the, if you are finding the literature on the commons. And, in this second generational theories, then will be finding, that the sections of this this commons will be dependent on the trust among the members or participants.

And, the reciprocity the kind of the frequency of which they are communicating from for actions against actions, or actions for actions. So, these are the main determinants of the collective actions. And, this 2 points centrality of trust and reciprocity wholes the very very crust of the very backbone of the second generation theories on the commons itself, and she contributed in this regard. How to build trust and how to reciprocate?

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- Her critique of Hardin's Tragedy of the Commons may be valid for special cases like small-scale, locally governed commons; whereas Hardin's thesis seems justified for macro scales like regional, national and global commons (Araral, 2014).
- Validity of her institutional design principles for long-lived commons: Managing global commons requires a different set of governance principles compared with the local commons (Ibid; Stern, 2011).
- Question on generalising eight institutional design principle (Araral, 2014; Cox et al., 2010)
- Failure to distinguish between a commons and partnership arrangements: in case of the commons outsider can be excluded from entry but not for the partnership arrangements.

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How are so, for the a critics of the of this theories concerned governing the commons. So, it can be again said she criticized Hardin's Tragedy of Commons, but; however, her critics say that this Hardin's tragedy of commons may be valid for special cases, like small scale.

So, when she criticize the Hardin's Theory of Commons her critics said that it may be valid for this special cases like micro scales, or the small scale cases, or the locally governed commons, but the original Hardin's Theory, it seems justified for the macro scales, like a particular region, global commons, or national commons. So, they are it is very difficult to actually go for organizing or finding, a self-governance, mechanism in terms of institutions.

So, this is one of the critics against this governance of the commons. It may be her criticism may be applicable. So, for the tragedy of commons thought is concerned, may be applicable

for special cases for the micro scales, but for macro scales still the tragedy of the commons phenomenon, may be prevalent.

So, another criticism is validity of her institutional design principles. So, right now has you understand that, she propounded she actually thought about she work on institutional design principles and she talked about 8 different institutional design principles, in order to maintain this self-governance mechanisms sustainable. And; however, this validity of the institutional design principles, can be applicable for long lived commons, but managing global commons requires a different set of governance principles compared with the local commons.

So, this is again one of the criticism another criticism. That may be this institutional design can tackle the problem of the micro or the local commons, but for the governance of the of the global commons, the principles will be different, because if you can take in to account. So, let us take the case of the biodiversity and the conservation.

So, the biodiversity and conservation this policy or these objectives or these common actions at the global scale, may be impacted by so, many institutions and so, many acts or so, many strategies you can say. So, let us say it can be impacted by the CVD convention on biological diversity act or it can be also impacted by some negotiations by the UN.

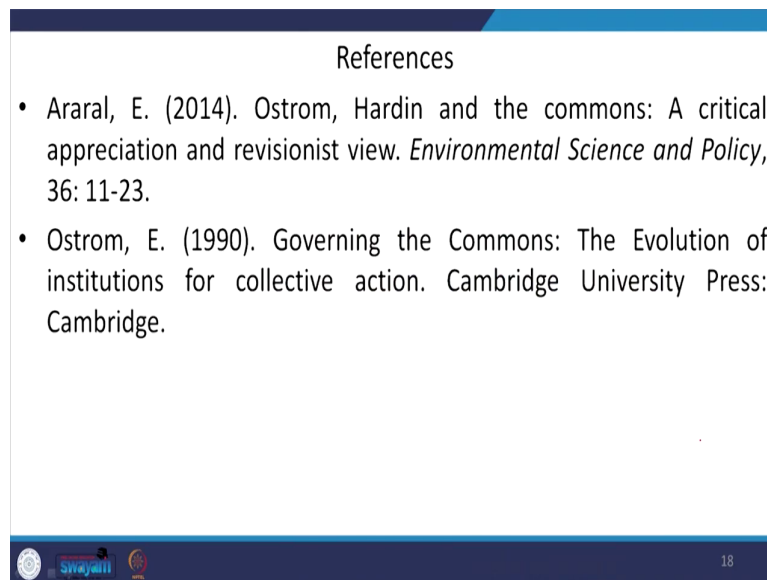
So, in this way the governance principles that she talked about can be meant for the local commons, but for managing the global commons, it will be requiring some different set of governance principles. That is how these the her critiques we are saying. And, moreover that is why we cannot actually generalize this 8 institutional design principle for macro as well as micro scales.

So, this is again the problem of generalization of this 8 design principle. So, for the local commons and the global commons are concerned, and another critic maybe criticism may be in terms of her failure to distinguish between the commons and partnership arrangement. There is a difference; perhaps it seems that her theory is stricting both of these arrangements equally.

So, if you see this case of commons. So, in this case the outsider can be excluded, because it is a commons. The very feature is non-sorry you can exclude from the very entry, because of this mechanisms. But, in case of the partners or partnership arrangement, the same principle of excluding from the entry, outsider exclusion from the entry may not be possible.

So, the criticisms can be led that this theory is if is having it is failure or it cannot actually deal successful. So, for the differentiation between the commons and partnership arrangement is concerned. So, these are the two basic references that you must look in to.

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So, this is the book that we are talking about *Governing the Commons, the Evolution of institutions for the collective actions*. And, you can also follow this this one the one of the

recent articles which by following you can actually find out what can be the criticism or how the Ostrom's thinking her argument may not be applicable in some conditional cases.