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An evaluation of management strategies of recreational use of mangrove forest in Mexico

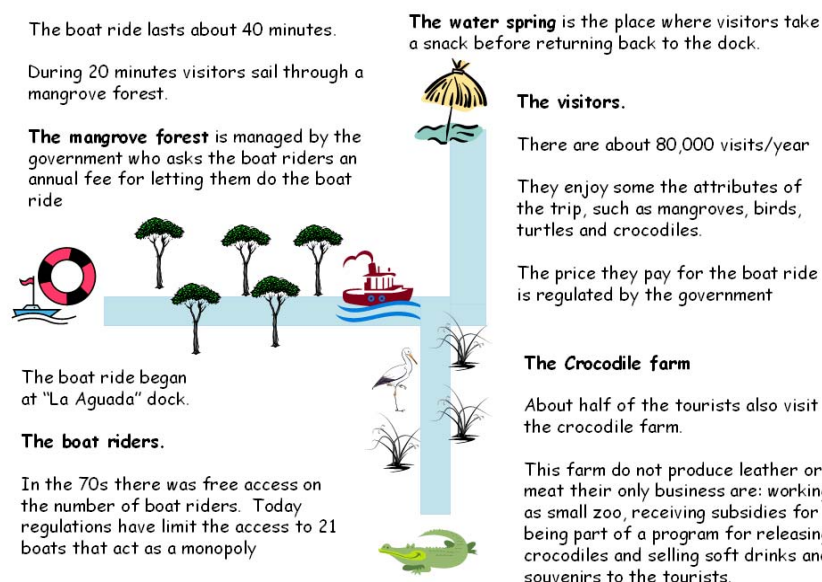
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Nature based tourism often involves many different economic agents, and different markets. Therefore, different types of market failures could be involved. For example, owners of a mangrove forest might not take into consideration that the quality of a tourist boat ride through the forest is a function of the quality of the mangrove forest. There could also be problems with market power. A provider of a certain tourist package might have market power, for example through regulations, and therefore have incentives to limit access. There is therefore room for different management strategies for the

government, both involving direct regulation, but also facilitating negotiations between different agents.

In this research project I look at the case of a tourist boat ride at the coast of the state of Nayarit, in Mexico. The boat ride goes through mangroves in which crocodile watching is an important part.

Figure 1.- Description of the boat ride chosen for this case study.



In figure 1, I describe the different economic agents involved directly or indirectly with the boat ride; and the existence of some market failures: public goods (the open access problem of the boat riders), positive externalities (crocodiles and mangrove increase the boat ride value) and the presence of a monopoly.

Several policies have been implemented at the site already.

Some of these policies have been helpful; but some of them seem have failed. Examples of the policies implemented at this site today are: creation of a monopoly, subsidizing productive activities, price control policies, and taxing the use of natural resources.

Based on the current management, and the external effects involved, it is possible to simulate various management scenarios:

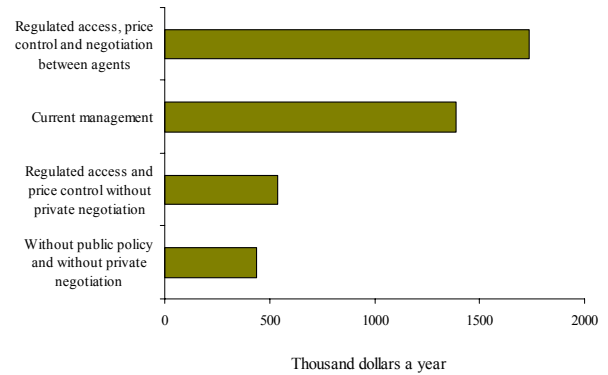
No management (without public policy and without private negotiation).- In this scenario, there is a free-entrance of boat riders. Under this assumption the boat riders will set a price equal to the marginal cost and they will not pay for mangrove maintenance. The crocodile farm will not receive subsidies and will run out of business. Finally there will be a reduction in demand caused by the non-existence of mangroves and crocodiles. This situation gives the worst outcomes of all the simulated strategies.

Regulated access and price control without any other public policy and without private negotiation.- Under this scenario the crocodile farm runs out of business creating a negative demand shock for boat rides due to the local extinction of crocodiles. These regulations improve welfare if compared with the first scenario, but still letting the society worse of when compared with the current management.

Current management.- Subsidies to the crocodile farm, regulation of the number of boats allowed and price control policies. This situation conduct to higher outcomes than the previous, because the positive externality of crocodiles has a very high impact on visitors welfare, and therefore on boat riders earnings.

Regulated access, price control and negotiation between agents.- For this scenario a new element is introduced to the analysis: negotiation. This scenario is the one in which the highest social outcomes are obtained. Comparing with the last scenario, there is a remarkable increase in social welfare from allowing negotiations. Thus defining property rights (regulating the entrance of boat riders) and setting the conditions for having arrangements between economic agents may conduct to higher outcomes than the traditional subsidy policies.

Figure 2.- Social outcomes with different management strategies



It is true that when property rights are well defined and negotiations are possible, then the problem of externalities (in this case the positive externality of crocodiles) could be solved by the particular economic agents obtaining the most efficient social outcome possible. But in this case, in which a good solution for creating property rights was limiting the open access, a monopoly was created. With this second market failure involved, the most efficient outcome was reached when that policy was complemented with an antitrust policy for controlling the monopoly price.

The actual management strategy is not an integrated conceived strategy. It is more like a learning-by-doing strategy that involved different governmental agencies that could hardly agree with other agency policies. This way of doing policy has created the current situation: (i) the creation of a monopoly, (ii) price control policies, and (iii) the use of government funds for subsidizing an activity that will not need any subsidy if negotiation was possible. All of these policies seem to be a bad idea, but all together conduct to a social outcome that is 315 percent higher that the outcome of doing nothing, and just 20 percent lower than the maximum outcome simulated.

Enrique Sanjurjo is a PhD Candidate in Economics. His LACEEP research project is a complete paper that is part of his PhD Dissertation. Once he finished the LACEEP project he was hired by the World Wildlife Fund as the officer responsible for the public policy design for the Marine Program in Mexico.

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