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## "The Commons, Game Theory, and Aspects of Human Nature that May Allow Conservation of Global Resources"

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Fundamental aspects of human use of the environment can be explained by game theory. Game theory explains aggregate behaviour of the human species driven by perceived costs and benefits. In the 'game' of global environmental protection and conservation, the stakes are the living conditions of all species including the human race, and the playing field is our planet. The question is can we control humanity's hitherto endless appetite for resources before we irreparably harm the global ecosystem and cause extinction of even more species? The central problem is that some proportion of the individuals or groups will behave selfishly. The inducement for using more than a fair share, or 'cheating', increases as that resource becomes rarer, thus the benefits of cheating increase. In addition, the total number of people is increasing, so the proportion of cheaters must decrease to even keep total resource use constant. Cost benefit analysis of the effect of regulation and incentives on potential cheaters may provide a rational approach to controlling environmental problems. While it is debatable that environmental values are constant across cultures, communal use of resources seems to follow global rules. Cooperative use and punishment of those who use more than their share appear to be ubiquitous in human societies. Schemes for controlling human impact on the global environment must take into consideration basic behaviours including development of social norms and the positive feedback created because resources become more valuable with increasing rarity leading to more incentive for consumption.

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