The Deepening Tragedy of the Commons

‘Where then, ah! where, shall poverty reside.
To ’scape the pressure of contiguous pride?
If to some common’s fenceless limits strayed,
He drives his flock to pick the scanty blade,
Those fenceless fields the sons of wealth divide,
And even the bare-worn common is denied’.

— Oliver Goldsmith
The Deserted Village

‘Freedom in an unmanaged commons leads inevitably to ruin. In a crowded world our only real freedom lies in joining with others in choosing and implementing the forms of coercion — mutual coercion, mutually agreed upon — which describes the result of any law in a democracy. Voluntarism will not save the whales or keep the skies unpolluted. Neither will it make possible population control by purely personal birth control in a welfare state: in this case, the compassionate rule of welfare, `to each according to his need’, creates a commons, with the usual prognosis of ultimate ruin’.

— G. Hardin
‘This Week’s Citation Classic’ Current Contents
14 May 1979, p. 316

‘Commons’ is an uncommon word. It is found in the name of the lower (and undoubtedly, more important) house of the British Parliament — the House of Commons. My first encounter with the word was when I came across Oliver Goldsmith’s 1770 poem, The Deserted Village, in a high school English class. The poem is a riveting, but melancholy, ode to a rural Utopia (‘Sweet Auburn! loveliest village of the plain’), which appeared to be rapidly disappearing in mid-18th century England. Several years later I came across Garret Hardin’s famous essay, The Tragedy of the Commons (Science, 1968, 162, 1243). Hardin (1915–2003), an ecologist raised questions about the sharing of common resources, land, water and the atmosphere among them, in the context of the increasing pressures of growing populations. He began his analysis by stating the thesis that there are classes of human problems that defy technical solutions. Hardin, borrowed the concept of a ‘problem with no technical solution’ from an analysis of the future of nuclear war by J. B. Wiesner and H. F. York (Sci. Am., 1964, 211, 27), which appeared at the height of the Cold War. For Hardin, an ecologist concerned with the effects of rapidly growing human populations, the ‘population problem’ belongs to the class of ‘no technical solution problems’. He stated his thesis clearly: ‘...Can Bentham’s goal of “the greatest good for the greatest number” be realized?’ The reference here is to Jeremy Bentham, English philosopher and author of An Introduction to the Principles of Morals and Legislation (1789). Bentham’s views are likely to leave modern readers bemused: ‘The purpose of government is to foster happiness of the individual and that the greatest happiness of the most people should be the goal of human existence’. Hardin quickly dismissed Bentham’s goal. His theoretical argument was based on an axiom which is a critical element in the von Neumann–Morgenstern elaboration of ‘game theory’ — ‘it is not mathematically possible to maximize for two (or more) variables at the same time’. A more ‘biological’ argument based on energy requirements led Hardin to the inexorable conclusion ‘that maximizing population does not maximize goods’. Worrying about the effects of unchecked growth of human populations, led Hardin to consider the problem of sharing common resources. Hardin outlined the logic that leads to the ‘tragedy of the commons’, by arguing that in a common pasture it
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is in the interest of an individual herdsman to increase the size of his flock. This is, of course, because the benefits of a larger herd accrue to the individual. The disadvantages of overgrazing are shared by all, as the common pasture degrades. For an individual, the choice is clear. Following this argument leads to Hardin’s conclusion: ‘Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to us all’.

In reaching this judgement Hardin felt compelled to ‘exorcize the spirit of Adam Smith’ whose 1776 book *The Wealth of Nations* had popularized the idea of an ‘invisible hand’... the public interest’. While Smith and his followers did not advance the ‘invisible hand’ as an ever-present guiding force of public policy, there has always been a tendency to imagine ‘that decisions reached individually will, in fact, be the best decisions for an entire society’. My quick search of the Internet using Google, quickly revealed that Adam Smith is most often misquoted; deliberate misquotation appears a powerful weapon of scholarship in both natural sciences and the social sciences. Hardin, even in the late 1960s appeared concerned with the ‘policy of laissez-faire’ in human reproduction. He argued that the existing population policies were correct only if ‘we assume that men will control their individual fecundity so as to produce the optimum population’.

The growth of populations and dwindling natural resources, water and oil preeminent among them, and the unchecked pollution of the air, earth, rivers and even oceans is a pressing problem today. The glaring inequalities in resource sharing between nations and even between populations within a country have made the world an unstable and dangerous place. Life in an unequal world is not going to get easier. Every element of Hardin’s ‘tragedy’ is evident in our immediate surroundings. Unchecked growth of population, uncontrolled use of common resources in activities which are both acquisitive and dissipative (following Hardin) and the absence of ‘social arrangements’ (rules and laws that are generally followed) is the norm in many parts of the world; India is no exception. For Hardin the only way out of the impending tragedy appeared to be the introduction of ‘coercive measures’. He noted (and we must remember he was writing at a time when American university campuses were in turmoil over Vietnam): ‘Coercion is a dirty word to most liberals now, but it need not forever be so... To many, the word coercion implies arbitrary decisions of distant and irresponsible bureaucrats; but this is not a necessary part of its meaning. The only kind of coercion I recommend is mutual coercion, mutually agreed upon by the majority of people affected’. Hardin’s concern with unchecked population growth led him to question the Universal Declara-

tion of Human Rights which ‘describes the family as the natural and fundamental unit of society’ and goes on to state ‘that any choice and decision with regard to the size of the family must irrevocably rest with the family itself and cannot be made by anyone else’. He admitted that ‘it is painful to have to deny categorically the validity of this right’ but he was bold in challenging a UN assertion at a time when it was taboo to do so in liberal quarters, to which he felt he belonged. Thirty years after his original essay Hardin observed: ‘Individualism is cherished because it produces freedom, but the gift is conditional. The more the population exceeds the carrying capacity of the environment, the more freedoms must be given up... Yet to come are many other restrictions as the world’s population grows’ (*Science*, 1998, 280, 682–683).

Hardin used the word ‘tragedy’ in the sense that Alfred North Whitehead did: ‘The essence of dramatic tragedy is not unhappiness. It resides in the remorseless working of things’. He did not claim to be the first to worry about the degrading commons, but quotes Whitehead again: ‘We give credit for an idea not to the first man to have it, but to the first man to take it seriously’ (*Current Contents*, 14 May 1979, p. 316). Hardin’s essay is now cited in many fields, ranging from discussions of open access publishing to privatizing universities (cf. Brown, J. R., *Science*, 2000, 290, 1701). A special section of *Science* (12 December 2003) entitled ‘Tragedy of the Commons’ had the editors suggest that contrary to Hardin’s assertion ‘science now has a central and urgent part to play’ (*Science*, 2003, 302, 1906). In addressing the problems that Hardin posed, both technical and political solutions appear distant and at times, unreachable. The issues he raised are relevant in India today (and everywhere else). The National Population Policy is ambiguous and state laws that impose a ‘coercive’ two-child norm are being challenged. Alternative solutions, education and women’s empowerment, are being advanced. ‘Voluntary and informed choices’ are seen as the most reasonable approaches. Development appears to be the most promising contraceptive. India’s degrading environment is also being hastened by unrestrained consumption; voluntary denial is not an attribute of modern life. The tensions between free markets and centralized management of the ‘commons’ are evident.

The issues that Hardin raised appear to have no technical or equitable political solutions. The ‘tragedy of the commons’, that he so evocatively described, continues to deepen. As we rush towards lopsided development, driven inexorably and tragically by free markets, a return to Goldsmith may be appropriate:

‘Ye friends to truth, ye statesmen who survey,
The rich man’s joy increase, the poor’s decay,
’Tis yours to judge, how wide the limits stand
Between a splendid and a happy land’.

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