

RESOURCE OWNERSHIP AND HUMAN INTERACTION : A THEORETICAL EXPOSITION

DINESH MAROTHIA

Indira Gandhi Agricultural University, Raipur-492 012, India

ABSTRACT

This review paper focuses socio-economic and environmental aspects of natural resource problem within the context of an interdependent network emphasizing human interactions with respect to natural resource use. It also traces the ambiguities and inadequacies in theoretical approaches with respect to the components of natural resource problems (i.e. rights, power, freedom, security, interest conflicts and interdependence) and proposes a theoretical formulation for drawing logical inferences in natural resource policy.

INTRODUCTION

Right, power, freedom, security, interest conflict and interdependence are the most crucial components of natural resources policy. The theoretical approach in dealing with interdependence and relationship among individuals and individual ownership and control of resources are too narrow and naive in nature (Marothia, 1981; Marothia and Phillips, 1985). It is important to thoroughly understand the interrelationship among policy variables. This paper reviews the philosophic foundations of ethical choices and competing ideologies with respect to resource ownership and human interaction in analyzing the natural resource problems.

Economics, social values and human interaction

Studies of economic problems have their roots in the analysis of human behaviour, relationships among institutions that shape man's behaviour and society's value system, all within the framework of scientific enquiry. While approaches to dealing with human behaviour and control of resources may differ from hedonic, classical, neoclassical and marxist economics to institutional economics, the focus has always been on channelizing the individual behaviour into socially beneficial manifestation within an individual's freedom, security and rights, as well as justice.

An economic framework developed by Locke (1690), Smith (1759, 1776) and the classical economists, the neoclassical economists and the Chicagoans, found social virtue in the outcome of a myriad of independent decisions, each based on

individual self-interest. Theories of Locke and Smith explain the relationship between human behaviour, and the control of resources or property underlines the concept of natural rights and self interest (cf. Rosenberg, 1960). Smith's advocacy of *laissez-faire* assumed the existence of competitive markets and he was against the government intervention in the economy on political, philosophical and economic grounds. He argued that, in general, any government interference is undesirable since it infringes upon the natural rights and liberties of individuals (Smith, 1776). Mandeville (1924) disapproved the idea of Smith, although he also had the same assumption of the "egotistical nature of man". Mandeville felt that the pursuit of individual self-interest would have many undesirable social and economic consequences and, therefore, built a strong case for government intervention in the economy (Landreth, 1976).

Malthus (1798), Ricardo (1817), and Mill (1929) also focused their analysis on the relationships between nature and people to a great extent. However, Mill's view of the good society and resource control reflects a blend of classical liberalism with social reform. In Mill's opinion, absence of government intervention does not necessarily result into maximum freedom since there are many other restraints on freedom which only the legislation or other government actions can resolve (cf. Haveman, 1970; Barkley and Seckler, 1972).

Among the diverse concerns of classical economists, individual freedom and physical control of property in the *laissez-faire* system persisted with considerable consistency (Stigler, 1949). This common theme was also the concern of neoclassical economists (marginalists like Marshall, 1890; Keynes, 1936; Viner, 194 ; Warles, 1954; and the welfare economists like Pigou, 1920; Little, 1957 Mishan, 1965, and Pareto 1971), who believed that the *laissez-faire* system guarantees all manner of desirable economic outcomes and, at the same time, is compatible with the highest conceivable degree of human freedom in which one may do what one wants with one's self and one's property within a framework of minimal restrictions for the common good (Hayck, 1935; Knight, 1960; and Friedman, 1962).

Power is limited by rights in competition. The exclusive focus of mainstream economics on market competition - the only appropriate role of government to maintain competition - has been challenged by Marx (1849). Pigou (1920), Clark (1923), Mill (1929), Samuelson (1955, 1958), Robinson (1963, 1971), Shaffer (1969), Galbraith (1971), Solo (1974), and Schmid (1978). Since the Keynesian revolution, mainstream economists have accepted to some extent the role of government in stabilization of market mechanisms. The Keynesian perspective gave the competitive market a place as an important institutional concept. In short, market competition deals with power, freedom, rights, security and efficiency in a passive and effectual manner.

The neoclassicals saw a harmony of interest arising through voluntary exchange from the interaction of independent and entirely selfish individuals. The institutionalists, working from a much more complex concept of human motivation and social organization, saw conflict as the predominant phenomenon and, as a result, raised fundamental questions about neoclassical methodologies (Liebhafsky, 1976 and Randall, 1978a, 1978b). According to institutionalists, neoclassical economists have been very narrow in the selection of variables for consideration, extremely abstract and simplified in their approach to society and inadequate with respect to human interdependence and relations to the environment. This narrow emphasis of neoclassicals has, however, been criticized by many workers (cf. Ranade, 1920; Veblen, 1923; Commons, 1931, 1934, 1950; Mukherjee, 1942, 1964; Parson, 1941, 1942, 1974; Ayers, 1944; Myrdal, 1955, 1960, 1978; Clark, 1957; Galbraith, 1958, 1971, 1973; Boulding, 1957, 1975; Gruchy, 1947, 1969, 1972; Robinson, 1963, 1971; Ward, 1972; Shaffer, 1969; Kelso, 1977; Schmid, 1978; Elliott, 1978).

The institutionalist approach is strongly oriented towards defining relationships among individuals with respect to resource utilization and other economic pursuits (Ely, 1914). Parson (1942) defined property as a set of social relationships which ties the future to the present through expectation of stabilized behaviour regarding other persons and things. Schmid (1972) defined institutions including property as '..... sets of ordered relationships among people that define their rights exposure to the rights of others, privileges and responsibilities'. The terms 'institutions', 'rights' and 'rules of the game' are used interchangeably in various definitions with slight differences in the degree of aggregation and abstractness implied. The definitions of Parson and Schmid are influenced by the Commons collective action theme.

Commons (1934) viewed collective action as expanding and liberating as well as controlling individual action and it ranges from organized custom to organized 'going concerns'. Collective action, as well as individual action, is influenced by scarcity. In the face of scarcity, according to Commons, self interest breeds conflict and disorder. Conventional economics focuses essentially on man-to-nature or man-to-himself relations and in the conventional view, scarcity leads to individual economizing choices. By contrast, Commons institutional economics focuses upon man-to-man actions or 'transactions'. Ownership 'becomes the foundation of institutional economics' because ownership interacts with scarcity to create conflicts of interest which are 'predominant in transactions'. But transactors are mutually interdependent as well as conflicting. Because of this mutual interdependence, Commons suggested that the alienation and acquisition of rights of future ownership of physical things among individuals would be negotiated between the parties concerned, according to the working rules of society, thus creating a 'certain security of expectation' or 'order' as distinguished from neoclassical 'equilibrium' or 'harmony' (Commons, 1934). Thus the conventional concept of natural rights was rejected by Commons,

who considered rights to be relative, evolutionary and subject to change or limits as per needs or values of power relationships and society. Thus Commons regarded behavioural rules influencing patterns of thoughts, behaviour and expectations of man as institution. Behavioural rules also liberate the man by providing security and limitations on the actions of others which might impinge upon him. The institutional economics of Commons emerges as a result of his unusual intellectual synthesis of the theories of sociology, law and economics. In the institutional approaches the foundation of logical inferences for natural resource economic research.

PROPERTY RIGHTS AND RESOURCE UTILIZATION

As societal needs change, so do our rights. Some elaboration of individual rights is necessary to gain a clear understanding of the problems of resource policy analysis. Working from the ideas of Commons, Long (1953) elegantly argued the importance of freedom and security of policy objectives and examined the implications of the widely held idea (by both laymen and economists) that freedom and security are somehow inherently incompatible that any public policy decision involves a choosing of how much of one of these great value objectives we want at the expense of the other.

The nature and extent of rights change and individual freedom is subject to sanction. The recognition that rights are subject to limits and changes (Commons, 1931) is fundamental to a clear understanding of any natural resource policy analysis. Rights are the instruments by which any society controls and orders human interdependence and resolves the question of who gets what (Parson, 1941). In the absence of rules that govern through social organization, human relations settle down to a sheer play of power against power - a war of all "against all", in which individual life is "solitary, poor, nasty, brutish and short" (Long, 1953). Alternative rights are of interest because of their effect on economic performance and outcomes (Schmid 1978). Rights define potential opportunities and the opportunities of one person are shaped by the opportunities of others (Samuels, 1972). "Thus the opportunity sets of an individual are composed of alternative lines of action that are open because of the relative structure of rights as well as the relative capacity of the person to make use of those of those rights. The value of a right is also limited by available knowledge and technology. The opportunity sets of individuals interact and condition the outcome of human transactions. The components of the institutional structure are then one of the points of leverage in changing outcomes (Schmid, 1978.)

A basic shift in the structure of rights is evident in many problems of natural resource economics. When dirty air and water became increasingly evident, the obvious question is, who is using that natural resource? With the realization that resource quality was lower than before and fuelled by the relaxation that individuals

and group can work to change certain behaviour rules of society (Bromley, 1976b), the presumptive property rights for air and water, long in the hands of the producers of commodities, was called into question. Property rights are shifted and working rules are altered since they are the expectations of what individuals can or cannot do, and since they are controlled, liberated or expanded by collective action, under this new set of working rules, the situation is completely changed. For example, the fisherman used to petition the polluter to cease and desist, whereas the petition must now, in most instances, come from those who wish to dump wastes. In the new situation, the polluter cannot ignore the social costs of production activity in the form of external diseconomies. There could not be clearer evidence of a fundamental shift in presumed property rights (Bromley, 1976b).

The example of the shift in the structure of rights outlined above emphasise human interdependence and interactions. The interdependence can be described in terms of institutionalized cost (or transaction cost in Commons terminology), external effects and power. As Commons (1934) suggested, one person's right to act really means that others are limited in avoiding the consequences of the act. One person's freedom is another's limitation if interests conflict in the face of scarcity. Thus property is not simply a derivation of a physical fact. It also reflects a social choice of the kind of efforts that are counted in creating an image in an individual's mind about the knowledge of a person's rights. A community usually defines property rights either by a common problem or by the mutual advantage of joint action (Schmid, 1978).

Commons institutional framework with its profound insight involves the decision-making capabilities of individuals to form stable expectations about the behaviour of others by knowing the working rules that will facilitate the organization of human endeavour. Since the components of resource policy analysis -rights, power, freedom, security and human interaction, remain the province of Commons, institutional economics, the approach used here largely comes from Commons foundations of policy analysis.

AMBIGUITIES IN THEORETICAL APPROACHES

The institutional approach of Commons (1934) is pragmatic. The philosophic approach to this pragmatism can be traced to Dewey (1922). The institutional framework of Commons is a detailed and valid description of real world problems. Commons model has not been accepted by mainstream economists because it is not well adapted to the mathematical technology, however, the ideas have been influential among land economists and many other institutional economists (Randall, 1978a, 1978b). The economists used Commons' ideas per se, or in modified or slightly extended forms and, at the same time, internalized most, the theory and

Commenting on the public choice approach, Ostrom (1971, 1975, 1976) says that proponents are more apt to refer to rule structures as rules of the game rather than structures as working rules of going concerns. The emphasis following Commons, however, is upon the logical implications that follow when individuals choose strategies in light of the opportunities inherent in the different rule structures. Rules are viewed as constraints that order human conduct and, thus, are instrumental in evoking predictable consequences. One may conclude that "public choice" advocates developed a positive approach to institutional analysis, but as Samuels (1974) indicated, the approach has an element of self-decision. A property rights paradigm proposed by North and Thomas, (1970) for instance, suggests that institutions seem to change in response to pressures for gain on the part of entrepreneurs. Once the change in the institutional structure is accomplished, a change in technology quickly follow suit. Runge and Bromley (1979) commented on the adequacy of North and Thomas model. They questioned whether or not any meaningful conclusions could be drawn in the absence of institutional change (property rights change). In their view, the model of North and Thomas is similar to a Malthusian model with entrepreneurial gain as the determining factors - gain which is a function exclusivity of property arrangements.

The above arguments suggest that institutions are not all property and not all rights (Gonce, 1976; Goldberg, 1976b; Leibhafsky, 1976 and Lowry, 1976). The failure of mainstream economists to understand the fundamental nature of institutions not only seriously undermines their analysis but their recommendations as well. As Commons explains, institutions express a society's value system and gives effect in the from of the working rules. Institutions must be broadly consistent with the ethical values of society in order to be reasonably stable. The preoccupation of neo-classical economists with means rather than ends limits the ability of its adherents to understand working rules which institutionalize both means and ends (Gruchy 1969, Randall, 1978a).

SEARCH FOR A BETTER CHOICE

It is evident from the serious critique of institutional economists that the approach of mainstream economists in dealing with human interdependence and relationship among individual ownership and control of resources is too narrow and naive in nature. But this critique raises two important questions : Do the institutional economists have a better alternative? Should institutionalists remain clearly separate from mainstream economists? The answer to the first question seems to be yes. Many institutionalists make a distinct alternative formulation of economics. Three areas, (1) an analysis of property rights and individual behaviour (Among leading contributions : Samuels 1972, 1974; Randall 1974; Ciriacy-wantrup and Bishop 1975; Yandle 1975; Coelho, 1976; Bromley 1976a, 1978; Schmid 1978; Veem-

an, 1978; Runge and Bromley, 1979), (2) a framework to analyse irreversible consequences of endangered species and resources (Major contribution by Krutilla 1967; Ciriacy-Wantrup and Phillips 1970; Phillips 1976; and Bishop 1978), and (3) an institutional approach to public choice, are all major potential contributions that institutionalists have made in order to understand human interaction and in order to analyze interdependence in a society. (Barkley and Seckler, 1972; Ostrom, 1971, 1975, 1976, and Schmid, 1978). The answer to the second question is certainly no. At least Commons did not seem to think so. Commons insisted that his legal economics was in no way an alternative to mainstream economics, but a complement intended to expand it and permit the achievement of its fullest potential (Commons 1931). Thus an institutional-mainstream synthesis seems appropriate in order to produce a superior informative and humanized economic formulation. Several institutionalists see opportunities for a synthesis of Commons, ideas with the mainstream approach (Boulding 1957; Gonce 1971, 1976; Goldberg 1974, 1976a, 1976b; Ostrom 1976; Kelso, 1977; and Randall 1978a). Work by Schmid (1978) is an excellent milestone attempt in this direction. Schmid, through careful analysis, derives many testable hypotheses which not only complement mainstream economics, also but provide superior economic formulations to existing mainstream framework in the area of property, power and choice. A synthesis of mainstream and institutional economics was recently used to conceptualize soil erosion problem (Marothia and Phillips, 1985). The focus in this synthesis was the manner in which a particular institution or set of institutions (working rules) affects individual freedom, securities, rights and individual views of efficiency output and equality which dominate when individuals interests are in conflict in an interdependent situation. These attempts suggest possibilities for analyzing major natural resource and environmental problems using a synthesis of neo-classical and institutional economics to a complex situation where property rights efficiency equity, resource use, rates and human interaction are woven in an interdependent world. Different theoretical formulations utilizing the concepts of institutional and neo-classical economics have been used in analyzing the problems of natural resources in the Indian context. Socio-economic rationale of wasteland afforestation (Marothia, 1987), institutionalizing the village irrigation tanks (Marothia, 1986 & 1988) and canal irrigation system (Marothia et al., 1987) and land application of industrial waste water (Chandrakar et al., 1989) are some examples where institutional-neoclassical economics framework was used to analyze these natural resource problems.

ACKNOWLEDGMENTS

The author is grateful to Professors W.E. Phillips, T.W. Manning, J. Delehanty and T. Veeman of the University of Alberta Professors D.W. Bromley and R.C. Bishop of the University of Wisconsin, and Professors G.E. Schuh and J. Waelti of the University of Minnesota for providing their valuable suggestions at an early stage of this research. This research was funded under the Commonwealth Scholarship & Fellowship Plan by the Canadian Commonwealth Scholarship and Fellowship Committee.

REFERENCES

- Alchian, A. and Demsetz, H. 1973. The property Rights Paradigm. *Journal of Economic History*, 33: 16-40.
- Ayers, C.E. 1944. *The Theory of Economic Progress*. University of North Carolina Press, Chapel Hill.
- Barkley, P.W. and Seckler, D.W. 1972. *Economic Growth and Environmental Decay: The Solution Becomes the Problem*. Harcourt, Brace, Jovanovich, New York.
- Barlowe, R. 1972. *Land Resource Economics*. Prentice Hall, New Jersey.
- Binswanger, H.P. and Ruttan, V.W. 1978. *Induced Innovation*. The Johns Hopkins University Press, Baltimore.
- Bishop, R.C. 1978. Endangered Species and Uncertainty: The Economics of a safe Minimum Standard. *American Journal of Agricultural Economics* 60: 10-18.
- Black, R.D. 1958. *The Theory of Committees and Elections*. Cambridge University Press, New York.
- Boulding, K.E. 1957. A New Look at Institutionalism. *American Economic Review*, 47: 1-12.
- Boulding, K.E. 1975. Notes on the Present State of Neoclassical Economics as a Subset of the Orthodox. *Journal of Economic Issues*, 9: 223-227.
- Bromley, D.W. 1976a. Economics and Public Decisions: Roles of the State and Issues of Economic Evaluation. *Journal of Economic Issues*, 10: 811-838.
- Bromley, D.W. 1976b. Environmental Quality and Economics: What are the Issues? *Economic Issues*, 4. Department of Agricultural Economics, University of Wisconsin, Madison, U.S.A. pp. 4.
- Bromley, D.W. 1978. Property rules, liability rules and environmental economics. *Journal of Economic Issues*, 12: 43-60.
- Buchanan, J.M. and Tullock, G. 1964. *The Calculus of Consent: Logical Foundations of Constitutional Democracy*. Ann Arbor: University of Michigan Press.
- Castle, E.N. 1978. Property rights and the political economy of resource scarcity, *American Journal of Agricultural Economics*, 60: 1-9.
- Chandrakar, M.R., Marothia, D.K., Mishra, M.K. and Mukherjee, A.P. 1989. Land Application of Industrial Waste Water. Paper presented in the Seminar on Chhattisgarh Agricultural System, I.G.A.U., Raipur, Jan. 20-23.
- Ciriacy-Wantrup, S.V. 1952. *Resources Conservation Economics and Policies*. Berkeley: University of California Press.
- Ciriacy-Wantrup, S.V. 1969. Natural Resources in Economic Growth: The Role of Institutions and Policies. *American Journal of Agricultural Economics*, 51: 1314-1324.

- Ciriacy-Wantrup, S.V. and Bishop, R.C. 1975. Common property as concept in natural resources policy. *Natural Resources Journal*. 15: 713-728.
- Ciriacy-Wantrup, S.V. and Phillips, W.E. 1971. Conservation of California Tule Elk: A socio-economic study of a survival problem. *Biological Generation*. 3: 23-32.
- Clark, J.M., 1923. *Studies in the Economics of Overhead Costs*. Chicago: University of Chicago Press.
- Clark, J.M. 1957. *Economic Institutions and Human Welfare*. New York: Alfred A. Knopf.
- Coase, R.H. 1960. The Problem of Social Cost. *Journal of Law and Economics*. 3: 1-14.
- Coelho, P., 1976. Rules, Authorities and the Design of Not-for-Profit Firms. *Journal of Economics Issues*. 10: 416-28.
- Commons, J.R. 1931. Institutional Economics. *American Economic Review*. 21: 649-57.
- Commons, J.R. 1934. *Institutional Economics*. New York: Macmillan Company.
- Commons, J.R. 1950. *The Economics of Collective Action*. New York: Macmillan Company.
- Dahl, R.A., 1970. *After the Revolution? Authority in a Good Society*. New Haven: Yale University Press.
- Davis, L. and North, D. 1970. Institutional change and American Economic growth: A first step towards a theory of institutional innovation. *Journal of Economic History*. 30: 131-149.
- Demsetz, H., 1967. Towards a Theory of Property Rights. *American Economic Review*. 57: 347-73.
- Dewey, J. 1922. *Human Nature and Conduct*. New York : Henry Holt and Co.
- Dolbear, F.T. Jr. 1967. On the Theory of Optimum Externality. *American Economic Review*. 57 : 90-103.
- Dorfman, J. 1968. Commons, John R. *In International Encyclopedia of the Social Science*. Sills, D.L. (ed). Macmillan and Free Press, New York. 3 : 22-24.
- Downs, A. 1957. *An Economic Theory of Democracy*. New York : Harper and Row Publishers, Inc.
- Elliott, J.E. 1978. Institutionalism as an approach to political economy. *Journal of Economic Issues*. 12 : 91-114.
- Ely, R.T. 1914. *Property and Contract*. New York : Macmillan Company.
- Friedman, M. 1962. *Capitalism and Freedom*. University of Chicago Press, Chicago.
- Furubotn, E. and Pejovich, S. 1972. Property Rights and Economic Theory : A Survey of Recent Literature. *Journal of Economic Literature*. 10 : 1137-62.

- Galbraith, J.K. 1958. *The Effluent Society*. Macmillan, London.
- Galbraith, J.K. 1971. *The New Industrial State*. Boston : Houghton Mifflin Co.
- Galbraith, J.K. 1973. *The Economics and the Public Purpose*. Boston : Houghton Mifflin Co.
- Goldberg, V. 1974. Public Choice Property Rights. *Journal of Economic Issues*. 8: 555-80.
- Goldberg, V. 1976a. Toward an Expanded Economic Theory of Contract. *Journal of Economic Issues*. 10 : 45-61.
- Goldberg, V. 1976b. Commons, Clark and the Emerging Post-Coasian Law and Economics. *Journal of Economic Issues*. 10 : 877-93.
- Gonce, R.A. 1971. John R. Commons' Legal Economic Theory. *Journal of Economic Issues*. 5 : 80-95.
- Gonce, R. A. 1976. The New Property Rights Approach and Commons' Legal Foundations of Capitalism. *Journal of Economic Issues*, 10 : 765-97.
- Gruchy, A.G. 1947. *Modern Economic Thought : The American Contribution*. New York : Prentice Hall.
- Gruchy, A.G. 1969. Neo-institutionalism and the Economics of Dissent. *Journal of Economics Issues*. 3 : 3-17.
- Gruchy, A.G. 1972. *Contemporary Economic Thought : The Contribution of Neo-Classical Economics*. Clifton : Augustus M. Kelley.
- Haveman, R.H. 1970. *The Economics of the Public Sector*. New York : John Wiley and Sons.
- Hayami, Y. and Ruttan, V.W. 1971. *Agricultural Development : An International Perspective*. Baltimore : The John Hopkins Press.
- Hayck, F.A. (ed.). 1935. *Collectivist Economic Planning*. London : Routledge and Kegan Paul.
- Johnson, G.L. 1962. Interdisciplinary Approaches to Land Economics Research. *In* Land Economics Research. Ackerman, J., Clawson M. and Harris M. (ed.) Baltimore : John Hopkins University Press for Resource for the future. 197-209 pp.
- Kanel, D. 1974. Property and Economic Power as Issues in Institutional Economics. *Journal of Economic Issues*. 8 : 827-40.
- Kapp, K.W. 1968. In Defence of institutional Economics. *Swedish Journal of Economics*. 70 : 1-18.
- Kelso, M.M. 1977. Natural Resources Economics : The Upsetting Discipline. *American Journal of Agricultural Economics*. 59 : 814-823.
- Keynes, J.M. 1936. *The General Theory of Employment Interest and Money*. New York : Harcourt and Brace.

- Kneese, A.V. 1970. Environmental Pollution : Economics and Policy. *American Economic Review*. 61 : 153-66.
- Knight, F. 1960. *Intelligence and Democratic Action*. Cambridge, Mass. : Harvard University Press.
- Krutilla, J.V. 1967. Conservation Reconsidered. *American Economic Review*. 57 : 776-786.
- Landreth, H. 1976. *History of Economic Theory*. Houghton Mifflin Co., Boston.
- Leibhafsky, H.H. 1976. Commons and Clark on Law and Economics. *Journal of Economic Issues*. 10 : 751-64.
- Little, I.M. 1957. *A Critique of Welfare Economics*. London : Oxford University Press.
- Locke, J. 1690. *An Essay Concerning the True Original Extent and End of Civil Government*. New York : Hafner.
- Long, E.J. 1953. Freedom and Security as Policy Objectives. *Journal of Farm Economics*. 35 : 317-322.
- Lowry, S.T. 1976. Bargain and Contract Theory in Law and Economics. *Journal of Economic Issues*. 10 : 1-22.
- Malthus, T. 1798. *An Essay on Principles of Population*. London : Ward Lock and Co.
- Mandeville, B. 1924. *The Fable of the Bees*. Kaye, F.B. (ed.). Oxford : Clarendon Press.
- Marothia, D.K. 1981. *An Economic and Institutional Analysis of soil erosion on Agricultural Land*. Unpublished Ph.D. Thesis, The University of Alberta, Edmonton, Canada.
- Marothia, D.K. and Phillips, W.E. 1985 : Analysis of natural resource problems using a synthesis of neoclassical and institutional economics. *Asian Journal of Economics and Social Studies*. 4 : 263-281.
- Marothia, D.K. 1986. Tank irrigation in Chhattisgarh region : Management and policy issues. *Indian Journal of Agricultural Economics* 41 : 56-58.
- Marothia, D.K. 1987. Socio-economic aspects of afforestation programmes. Paper presented in a Training Course on Project Formulation, Appraisal and Monitoring at CAZRI Jodhpur, Feb. 23-27.
- Marothia, D.K., Mukherjee, A.P. and Sharma, S.K. 1989. Canal irrigation system : Socio-economic and management Issue. *Indian Journal of Agricultural Economics* 44 : 300.
- Marshall, A. 1890. *Principles of Economics*. London : Macmillan.
- Marx, K. 1849. *Capital*. Chicago : Charles H. Kerr.

- Mill, J.S. 1929. *Principles of Political Economy*. New York : Longmans, Green.
- Mishan E.J. 1965. A Survey of Welfare Economics 1939-59. *In A Survey of Economic Theory*, Macmillan, London, Vol. 1.
- Mishan, E.J. 1971. The postwar literature of externalities, *Journal of Economic Literature*, I : 1-28.
- Mukherjee, R. 1942. *The Institutional Theory of Economics*. London : Macmillan and Co. Ltd.
- Mukherjee, R. 1964. *The Destiny of Civilization*. Bombay and New York: Asia Pub. House.
- Myrdal, G. 1955. *The Political Elements in the Development of Economic Theory*. Cambridge, Mass. : Harvard University Press.
- Myrdal, G. 1960. *Beyond the Welfare State*. New Haven : Yale University Press.
- Myrdal, G. 1978. *Institutional Economics*. *Journal of Economic Issues*. 12 : 1-14.
- Niskamen, W.A. Jr. 1971. *Bureaucracy and Representative Government*. Chicago : Aldine-Atherton.
- North, D.C. and Thomas, R.P. 1970. An Economic Theory of the Growth of the Western World. *The Economic History Review*. 23 : 1-17.
- Olson, M. 1965. *The Logic of Collective Action*. Cambridge, Mass. : Harvard University Press.
- Ostrom, V. 1971. *The Political Theory of a Compound Republic : A Reconstruction of the Logical Foundations of American Democracy as Presented in the Federalist*. Blacksburg, Va. : Virginia Polytechnic Institute, Center for Study of Public Choice.
- Ostrom, V. 1975. Public Choice Theory: A New approach to Institutional Economics. *American Journal of Agricultural Economics*. 57 : 844-849.
- Ostrom, V. 1976. John R. Commons Foundations for Policy Analysis. *Journal of Economic Issues*. 10 : 839-857.
- Pareto, V. 1971. *Manual of Political Economy*. New York: Augustus M. Kelley.
- Parson, K.H. 1941. Social Conflicts and Agricultural Programmes. *Journal of Farm Economics*. 743-764.
- Parson, K.H. 1942. John R. Commons' Point of View. *Journal of Land and Public Utility Economics*. 18 : 245-66.
- Parson, K.H. 1974. The Institutional Basis of an agricultural market economy. *Journal of Economic Issues*. 8 : 737-57.
- Phillips, W.E. 1976. *The Conservation of the California Tule Elk: A Socio-economic Study of a Survival Problem*. Edmonton : University of Alberta Press.
- Pigou, A.C. 1920. *The Economics of Welfare*. London : Macmillan.

- Rae, D.W. 1971. *The Political Consequences of Electoral Laws*. New Haven: Yale University Press.
- Ranade, M.G. 1920. *Essays In Indian Economics*, 3rd Ed. Madras: G.A. Natesan & Co.
- Randall, A. 1971. Market solutions to externality problems : theory and practice. *American Journal of Agricultural Economics*. 54 : 175-83.
- Randall, A. 1974. Coasian Externality Theory in a policy context. *Natural Resources Journal*. 14 : 35-54.
- Randall, A. 1975. Property rights and social microeconomics. *Natural Resources Journal*. 15 : 729-48.
- Randall, A. 1978a. Property institution and economic behaviour. *Journal of Economic Issues*. 12 : 1-21.
- Randall, A. 1978b. Contemporary issues in natural resource economics: Discussions. *American Journal of Agricultural Economics*. 60 : 290-292.
- Rawls, J. 1971. *A Theory of Justice*. Cambridge, Mass. Harvard University Press.
- Ricardo, D. 1817. *Principles of Political Economy and Taxation*. London: Everyman Edition.
- Ricker, W. 1962. *The Theory of Political Coalitions*. New Haven : Yale University Press.
- Robinson, J. 1963. *Economic Philosophy*. Chicago : Aldine.
- Robinson, J. 1971. The Second Crisis of Economic Theory. *American Economic Review*. 53 : 1-10.
- Rosenberg, N. 1960. Some institutional aspects of the wealth of nations. *Journal of Political Economy*. 68 : 557-570.
- Runge, C.F. and Bromley, D.W. 1979. Property Rights and the First Economic Revolution: The Origins of Agriculture Reconsidered. Centre for Resource Policy Studies, University of Wisconsin, Madison. U.S.A. Working Paper No. 13.
- Samuels, W. 1972. Welfare Economics, Power, and Property. *In Perspectives on Property*. Wunderlich, G. and Gibson, W. L. (ed.) University Park : Penn. State University Press, 20-32 pp.
- Samuels, W. 1974. The Coase Theorem and the Study of Law and Economics. *Natural Resources Journal*. 14 : 1-34.
- Samuelson, P.A. 1955. Diagrammatic exposition of a theory of public expenditures. *Review of Economics and Statistics*. 37 : 350-56.
- Samuelson, P.A. 1958. Aspects of Public Expenditure Theories. *Review of Economics and Statistics*. 40: 325-36.

- Schickele, R. 1941. Effect of tenure systems on agricultural efficiency. *Journal of Farm Economics*. 23: 185-207.
- Schmid, A.A. 1972. Analytical institutional economics: Challenging problems in the economics of resources for a new environment. *American Journal of Agricultural Economics*. 54 : 893-901.
- Schmid, A.A. 1976. The Economics of Property Rights: A Review Article. *Journal of Economic Issues*. 10 : 150-68.
- Schmid, A.A. 1978. *Property, Power and Public Choice: An Inquiry into Law and Economics*. New York: Praeger.
- Schultz, T.W. 1968. Institutions and rising economic value of man. *American Journal of Agricultural Economics*. 50 : 1113-1122.
- Sen, A. 1971. *Collective Choice and Social Welfare*. San Francisco : Silver and Boyd.
- Shaffer, J. 1969. On institutional absolution and innovation. *American Journal of Agricultural Economics*. 5 : 245-267.
- Smith, A. 1759. *The Theory of Moral Sentiments*. London: Candell and Devis.
- Smith, A. 1776. *The Wealth of Nations*. New York: Modern Library.
- Sojo, R. 1974. *The Political Authority and Market Systems*. Cincinnati: Southwestern.
- Stigler, G.J. 1949. *Five Lectures on Economic Problems*. London: Longmans, Green and Co.
- Timmons, J.F. 1959. Land institutions impending and facilitating agricultural adjustment, *In Problems and Policies in American Agriculture*. Centre for agriculture and Economic Adjustment, Ames: Iowa State University Press. 1-12 pp.
- Timmons, J.F. 1972. Public land use policy: Needs, objectives and guidelines. *Journal of Soil and Water Conservation*. 27: 195-201.
- Tullock, G., 1964. *The Politics of Bureaucracy*. Washington: Public Affairs Press.
- Veblen, T.B. 1923. *Absentee Ownership and Business Enterprise in Modern Times*. New York: Viking Press.
- Veeman, T.S. 1978. Water Policy and Water Institutions in Northern India: The Case of Groundwater Rights. *Natural Resources Journal*. 18: 569-87.
- Viner, J. 1941. Marshall's Economics, in relation to the man and to his times. *American Economic Review*. 31: 223-235.
- Warles, L. 1954. *Elements of Pure Economics*. Homewood, Ill.: Richard D. Irwin.
- Ward, B. 1972. *What's Wrong Wite Economics?* New York. Basic Books.
- Yandle, B. 1975. Property in Price. *Journal of Economic Issues*. 9: 501-14.