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THE ENVIRONMENTAL IMPACT OF THE WINTER OLYMPIC GAMES

by
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CHAPTER I

INTRODUCTION

The industrialized world is deeply committed to economic growth. Development pressures have been based upon population growth as well as satisfying demands for material consumption and recreational opportunities. Recently, adverse environmental impacts of economic and population growth have begun to generate popular demands for political action. A significant portion of the population, particularly in Western nations, had become aware of and concerned about environmental quality by the late 1960s, and since the mid 1980s and early 1990s we have seen demands for new public policy alternatives on a global scale (ex: the UN World Commission on the Environment and Development in 1987, the 1987 Montreal Protocol international treaty on restricting ozone depleting substances and the 1992 Rio Earth Summit). Green issues have become major international issues in the 1990s.

Parallel to this development in society generally, the environment and green issues have become central concerns of the Olympic movement. A new dimension of criticism of the Olympic Games - previously centred around scandals of cheating, doping, corruption and nationalistic politics - has been added. Concern for nature conservation and environmental protection was partly responsible (among other major issues such as public fears about financing the Games, lack of citizen participation in planning, and the secrecy of the Olympic committee's decisions), for prompting voters of Colorado to defeat business efforts to bring the 1976 Olympics to the state (Olson 1974; Chappelet 1991:

127). The residents of Lake Placid, New York, which hosted the 1980 Winter Olympics, accused the games of destroying the beauty of a large part of the Adirondack Park and of catalysing private development within it (Dumont 1979). In 1986, when a record number of 13 cities offered their candidature for the 1992 Summer and Winter Games, Lausanne, the IOC's home city retracted its candidacy due to a negative referendum inspired by both the ecology and communist parties (Chappelet 1991: 247). Environmental concern and Olympic organizers clashed again at the 1988 Games in Calgary over issues of wildlife protection.

However, it was not until 1992 that the Olympic Movement itself, including the International Olympic Committee (IOC) and the various organizing committees, began to incorporate environmental concerns into the actual planning and organization of the Winter Olympics. The 1992 Albertville Olympics were promoted as "model environmental Games" (FRAPNA 1991b: 1) that would return the Winter Games "to the very heart of nature" (Martin 1992a: F1). Closer scrutiny revealed, none the less, that those games were seriously damaging the environment through the construction of highly technological installations and urban infrastructure over a large area in a fragile alpine setting.

The organizers of the following Winter Games in Lillehammer, Norway, declared that they would host the first ever "Green Games". The president of the IOC, Juan Antonio Samaranch, promised that the chief duty of the IOC in the third millennium would be to respect the environment (Diester 1993: E6). It was declared that "Sport and the Environment" would be one of the four main themes at the Olympic Congress in Paris in 1994. And Sydney Australia (awarded the 2000 Summer Games) is working in close

association with Greenpeace and intends on being a "showcase for applied ecological protection" (Diester 1993: E6). This would seem to indicate that an ecological dimension has been added to the organization of the Olympic Games and that it is growing in importance and influence. Nevertheless, the conflict between economic and ecological goals is an ongoing one. Concern for environmental protection within the Olympic movement could radically alter the way the Games are held, but it would be at the risk of losing the political and economic support of interests whose environment-despoiling activities might be brought under attack (Caldwell 1971: 46).

This thesis examines the conflict over environmental issues of the Winter Olympic Games. It seeks to understand how and why the modern Winter Games are harming the environment. Therefore, this study will chronicle the environmental impact of the Winter Olympic Games, describe the evolution of changes and reforms being made to make the Games greener, examine the successes and failures of those reforms and explain the social forces that have resulted in the environmental impact of the Winter Olympic Games.

Usually considered secondary to the summer games or "jeux de l'olympiade", the Winter Olympic Games have increased in importance regularly and they offer an interesting perspective on the Olympic movement (Chappelet 1991: 122). This thesis will investigate the Winter Olympic Games because they have had a greater impact on the natural environment than the Summer Games. Few systematic sociological studies (see Olson 1974) have been done of the Winter Olympics, their environmental impact and the social dynamics that have promoted environmentally harmful Olympics. This study will

focus on the most recent Winter Olympic Games: Calgary, Canada, 1988; Albertville, France, 1992; and Lillehammer, Norway, 1994. A systematic comparative study of this dimension of the recent winter Olympics is particularly important because environmental and ecological issues became central global issues by the mid 1980s and early 1990s. Since it took some time for environmental concerns to penetrate the Olympic movement, it will be shown that these three winter Olympic Games are particularly good examples of three different approaches to addressing the environmental impact of the Winter Olympics, characterized by different degrees of environmental consciousness and by different types of organization concerning the environment.

From a theoretical standpoint, the aim of this study is to demonstrate that the evolution of the Winter Olympics from "big city" games in Calgary to "back to nature" games in Albertville, to the proclaimed "green games" in Lillehammer constitutes part of the intensification of rationalization: from the attempt to master "plastic" nature using technological means and reshape it to better suit an expanded Winter Olympic project, to more recently, the goal of avoiding ecologically irrational consequences of the Winter Olympics by "greening" them. It seeks to show how rationality is intensified by incorporating entirely new dimensions of rationality into the conception and practice of the Winter Olympic Games, in this case, that of ecological rationality.

Two concepts constitute the basis of this thesis: rationalization and centralization. In fact, this thesis can be seen as an attempt to demonstrate the usefulness of these two theoretical concepts as tools to understand changes in the organization and perception of the Winter Olympic Games. Max Weber was the person who developed most fully the

concept of rationalization. Weber analyzed how the process of formal rationalization and the centralization of power in bureaucratic forms leads to unintended and irrational consequences---the paradox of political action. This theory will be especially useful in understanding how the dynamics of science and technology and centralized hierarchical organization in Olympic sport have produced more efficient, high-tech, high performance sports installations, huge, highly bureaucratic and professional organization and at the same time, have increased damage to urban and rural environments where the Olympics are held. Weber's theory of rationalization leads to a better understanding of modern social organization, including, as will be shown here, of the modern Winter Olympic Games. It also leads to a better understanding of how irrational consequences, especially ecologically irrational consequences, are being dealt with by modern social organization.

Weber's analytical framework is essentially an anti-utopian theory that reveals the problematic character of solutions that propose to eliminate rationalization and its irrational consequences. It offers suggestions concerning what methods of social and political change have the best chance of success. The thesis will also juxtapose a Weberian approach to solving the ecological problems of the Winter Olympics with a utopian approach that emphasizes revolutionary projects, in this case, revolutionizing the Winter Olympics. This second theory that will be used here is that of Murray Bookchin. Bookchin's theory shares a similar thrust as Weber's in that he analyzes how the centralization of power in hierarchical forms leads to ecological degradation as well as other social problems. The solutions they propose for modern problems are, however, quite different. Bookchin argues that the utopian project of decentralizing society and

eliminating hierarchy is possible while Weber sees this project as unattainable and that it risks further unintended and irrational consequences. Thus this thesis seeks to make a contribution on three levels: 1) describing changes in the organization of the Winter Olympic Games and their harmful effects on the natural environment; 2) explaining those changes and effects; and 3) examining proposed paths to solving the problems.

Chapter II presents a description of the methodology and theoretical framework employed, which is expressed as a series of interrelated hypotheses derived from those aspects of Weber's and Bookchin's theories that are pertinent to the research objective. Chapters III to V give a description of the impact of these three Winter Olympic Games on the environment and of the evolution of discourse and policy concerning the environment within the Olympic movement. They also apply Weber's theory to explain the social structures and cultures that have led the Winter Olympic Games to have these environmental consequences. This description and analysis is accomplished using the framework and concepts presented in Chapter II. The concluding chapter, Chapter VI, evaluates the applicability of Weber's theory of formal rationalization in terms of its contribution to understanding the environmental consequences of the Winter Olympic Games. In the light of the evidence presented, we conclude whether or not our series of hypotheses derived from Weber's theory were substantiated. We also infer whether Weber's or Bookchin's theory offers the best possible solution to ecological problems generated by the Winter Olympics and which approach is more likely to be adopted in future changes in the Winter Olympic Games. Questions for further research that arise out of this study will also be presented.

CHAPTER II

RATIONALIZATION AND IRRATIONALITY

A theoretical approach is meant to sensitize us to certain issues and to guide our description of phenomena, our explanations of their origins, and our speculations about future possibilities. Weber's theory of formal rationalization captures a major feature of the development of Western societies, and because of their influence, of societies in the world at large. This process of rationalization has affected both institutions and cultures, hence it is only logical to expect that it has had an impact on the subject of this thesis: the Winter Olympic Games. This postulated effect can be expressed as a series of interrelated hypotheses that can be derived from the Weberian analytic framework.

Formal Rationalization

We begin by describing Weber's "idée maîtresse"; the ineluctable process of formal rationalization. According to Weber, the modern world is a product of a long process of formal rationalization and intellectualization. Instrumental in the development of formal rationality was the cultural outlook of Protestant asceticism. Religious asceticism favoured rationalized ways of life that were methodical, disciplined, calculable and efficient. Weber defined formal rationality as

"an increasing theoretical mastery of reality by means of increasingly precise and abstract concepts"... [and] "the methodical attainment of a definitely given and practical end by means of an increasingly precise calculation of adequate means." (Weber 1967: 293)

Formal rationality is, in other words, the rational choice of means to attain goals efficiently.

Formal rationalization has several important institutional components in complex modern society, including bureaucratization, the expansion of the capitalist market economy, the development of a formal legal system and the development of science and technology (Brubaker 1984; Murphy 1988). Formal rationalization also involves the tendencies of increasing specialization and the centralization of power within these institutions. The first two of these components of formal rationalization, bureaucratization and the expansion of the capitalist market, are examined here in further detail.

Weber observed that, "Everywhere bureaucratic forms of domination [were] in the ascendancy" (Roth 1987: 85). The Church was the first successful Western bureaucracy followed only much later by the modern state and modern enterprise. Weber reasoned that the advance of bureaucratic organization of the state and economic enterprises was due to the increasing complexity of civilization that necessitated efficiency and technical specialization in administration of a multitude of functions (such as the management of a water economy, the creation of armies and police, the tasks of social welfare, the development of public finances, infrastructure and modern communications, etc.). The advance of bureaucracy was also due to "its purely *technical* superiority over any other form of organization" (Weber 1978: 973). According to Weber, bureaucracy is "formally capable of application to all kinds of administrative tasks" and is "capable of attaining the highest degree of efficiency and is in this sense the most rational means of exercising authority over human beings" (Weber 1978: 223).

The second development, the expansion of the capitalist market, is also dependent on the process of formal rationalization because the latter has created several optimum conditions for the former. First, the capitalist market economy requires a stable, strict, intensive and calculable administration (Weber 1978: 224).

"Today it is primarily the capitalist market economy which demands that official business of the administration be discharged precisely, unambiguously, continuously and with as much speed as possible. Normally, the very large modern capitalist enterprises are themselves unequalled models of strict bureaucratic organisation" (Weber 1967: 215).

Secondly, the capitalist market rests on mechanized production which in turn depends on technical efficiency, precision, speed and specialization, all elements of formal rationalization. Thirdly, it requires a formal legal system that guarantees long term political, social and economic stability, predictability of the legal consequences of social action (Weber 1978:813), and a maximum of formal justice and formal freedom (Weber 1978: 812). "Among those groups who favor formal justice," Weber (1978: 813) includes, "all those political and economic interest groups to whom the stability and predictability of legal procedure are of very great importance, i.e., particularly rational, economic, and political organizations intended to have a permanent character."

Bureaucratization is in turn dependent on capitalism, both being institutional components of formal rationalization, because as Weber explains,

"capitalism is the most rational economic basis for a bureaucratic administration and enables it to develop in the most rational form, especially because from a fiscal point of view, it supplies the necessary money resources" (Weber 1978: 224).

In addition to these fiscal conditions of efficient bureaucratic administration, capitalist production also supplies extremely important conditions for bureaucratization in the fields

of communication and transportation (Weber 1978:224). Together, bureaucracy and capitalism provide efficiency and mechanized production that bring material advantages, technology and abundance, on which the modern world's population is very dependent. "More and more the material fate of the masses depends upon the steady and correct functioning of the increasingly bureaucratic organization of private capitalism" (Weber 1967: 229).

The rationalization process is also characterized by increased specialization and the centralization of power within rationalized institutions, including the state bureaucracy, capitalist enterprises and public organizations. Specialized knowledge in organization, technology and production necessary for the efficient functioning of bureaucratic institutions is a means of domination.

"[T]he primary source of the superiority of bureaucratic administration lies in the role of technical knowledge which, through the development of modern technology and business methods in the production of goods, has become completely indispensable." (Weber 1978: 223)

For Weber "the question is always who controls the existing bureaucratic machinery. And such control is possible only in a very limited degree to persons who are not technical specialists" (Weber 1978: 224). In addition, bureaucratic organizations or the holders of power who make use of them have the tendency to increase their power still further by the special and technical knowledge growing out of experience in the service (Weber 1978:225). There is, therefore, a tendency for specialization to increase and the centralization of power to occur at the same time.

"[T]he bureaucratic structure goes hand in hand with the concentration of the material means of management in the hands of the master," (Weber

1978: 980) [and] "...the bureaucratization of administration in other spheres goes hand in hand with the concentration of resources" (Weber 1978: 982).

This centralization of power also occurs because capitalist production and bureaucratic organization and distribution influence cultural values through the seductive benefits of increased production of consumer goods, increased wealth, and increased opportunities for fashioning external life.

"This reacts upon the standard of living and makes for an increasing subjective indispensability of organized collective, inter-local and thus bureaucratic, provision for the most varied wants, which previously were either unknown or were satisfied locally or by a private economy" (Weber 1967: 212).

The Weberian model leads us to predict that the microcosm (in this case, the modern Olympics) will share the characteristics of the macrocosm (modern society) and we should thus find evidence that formal rationalization has influenced the Olympic Games. Therefore the first hypothesis that may be derived from the preceding aspects of Weber's theory is simply that the modern Winter Olympic Games are also a product of formal rationalization.

Hypothesis 1:

There has been a rationalization in the Weberian sense of the Winter Olympic Games.

This will be documented by showing the increasing bureaucratization, specialization and centralization of the Winter Olympic Games and its increasing integration into the capitalist market, and in particular, the media market. The various indicators of commercialization, bureaucratization, specialization and centralization that will be examined include changes in 1) the ability of television networks to influence how the

Games are run, 2) the importance of corporate sponsorship, 3) the structure and power of the International Olympic Committee (IOC), and 4) the number of national and international Olympic organizations and committees in the "Olympic Movement".

Reshaping "Plastic" Nature

The next part of the Weberian framework, which is related to the impact the Winter Olympic Games have had on the environment, deals with that part of the rationalization process that has influenced the Western world's view of nature. As mentioned in the preceding section, one of the institutional components of rationalization is the development of science and technology. It has been accompanied by what Weber conceived of as an intellectualized orientation to the world. For Weber, the development of modern society is dominated by "une rationalization et une intellectualisation croissante de la vie qui conduisent à une spécialisation toujours plus poussée des activités et à une technicisation toujours plus accentuée de l'existence" (Freund 1969: 65). By intellectualization, Weber meant a belief in the human ability to use reason, science and technology to understand, predict and control both nature and human behaviour. Magical and religious meanings of the world have been replaced by the scientific view that the world is a causal mechanism that can be mastered by increased specialized knowledge, calculation and technical manipulation.

Weber's analysis of rationalization can be used to demonstrate, as Murphy (1994) does, how a view of the natural world as "plastic" has developed. Once the earth's natural processes and life itself lost their spiritual and magical significance, nature was

no longer perceived as an active force but as passive and replaceable, to be exploited and manipulated for human use. Nature has been indeed "technologized": it has taken on plastic characteristics that can be simulated, remodelled or replaced with synthetic inventions and materials, which are "superior" to natural conditions. This view of a plastic nature is supported by a deeply rooted philosophy in Western society that humans are entirely social products, radically separated from both nature and other species and able to transcend and control nature with reason and technology. "World mastery comes through rationalization . Humans have replaced God as the masters of their destiny" (Alexander 1987: 188).

This element of Weberian theory, that rationalization has produced an intellectualized view of the world that has subsequently resulted in an attempt to master and reshape a plastic nature, can be applied to the Winter Olympic Games and leads to our second hypothesis.

Hypothesis II:

The rationalization of the Winter Olympic Games has resulted in an attempt to master and reshape nature in the locations where those games took place.

Various indicators will be used to document this: the shift from nature's snow to artificial snow assisted by man-made bacteria and chemicals, from natural ice on the luge and bobsled run to ammonia based freezing, and from the use of natural slopes for ski jumping, alpine skiing and cross country skiing to the reshaping of mountains and terrain to create technically perfect ski runs.

Unintended Irrational Consequences

In the following section we look at that part of the Weberian framework which allows us to understand how action guided by formal rationalization and a plastic view of nature can have very harmful consequences that stand in a completely paradoxical relation to the intentions of social actors.

Weber contrasted formal rationality with another concept, substantive rationality, which allowed him to demonstrate the discrepancy between the efficiency of rational institutions and the irrationality of final results in terms of substantive values such as equality, freedom, brotherliness and we may add, ecological values. Weber also distinguished between instrumental rationality, where action is viewed as a means to achieve particular ends, and value rationality, where action is oriented by ultimate values regardless of its consequences. Instrumental rationality has long guided social action such that nature has been viewed as means and instruments for human use and consumption, rather than having intrinsic value independent of human needs (Murphy 1994:31). These conceptual distinctions between types of rationality allowed Weber to explain how increased formal rationalization and rationalized institutions have brought progress and increased rationality in one sense, but have been disadvantageous and have increased irrationality in another. "Il n'est pas loin de penser que, en vertu du paradoxe des conséquences, l'intellectualization croissante pourrait être désavantageuse pour l'humanité et tourner en calamité" (Freund 1969:66).

The paradoxical consequence of intensifying rationality is the magnification of irrationality. As formal rationality grows there is good reason to think that material

irrationalities increase equivalently (Albrow 1987: 182). For example, formal rationalization has mobilized powerful resources and brought incredible material benefits, yet it has also facilitated the development of sophisticated techniques for political manipulation (Brubaker 1984: 4), brought unemployment through mechanized production, and it has eliminated both metaphysical beliefs in the meaning of the universe and ethical imperatives of what ought to be (Alexander 1987: 186).

More importantly for our purposes, the formal rationalization process has brought about unintended ecologically irrational consequences. The intensification of rationalized capitalist production of energy and consumer goods has led to resource depletion, radioactive and toxic waste, global pollution of the atmosphere and oceans, nuclear weapons, nuclear accidents, and the disruption of the global ecological balance (Dryzek 1987; Elsworth 1990; Lovelock 1988; Meadows 1972; Perrow 1984). Because natural processes are unpredictable open systems, increasingly complex interventions in nature tend to produce larger, unmanageable, unwanted effects. Constant surveillance and increasingly sophisticated methods of calculation, prediction and intervention in nature along with the constant readjustments to ever greater secondary effects caused by such interventions become a permanent vicious circle.

The view of nature as plastic takes into account neither the complexity of nature nor the limitations of human knowledge. Weber (1967: 139) states that, "The increasing intellectualization and rationalization do not indicate an increased and general knowledge of the conditions under which one lives." Nature has its own dynamic that responds to our manipulations in ways that we cannot predict or control. The growing number of high

tech catastrophes (Perrow 1984), the failure of even the most modest ecological engineering projects (Dryzek 1987: 43-44), and global dangers (ozone depletion, the greenhouse effect and acid rain, etc.) attest to the complexity and variability of the biosphere and call into question the possibility of mastering nature (Murphy 1994: 13). The ultimate paradox is that rationalization of the means of production and the extension of scientific, technical control over nature has permitted environmental degradation to such a degree that the survival of the planet and human species is in danger.

Our third hypothesis regarding the Winter Olympics can be logically derived from the preceding elements of the Weberian framework.

Hypothesis III:

The reshaping of nature that has resulted from the rationalization of the Winter Olympic Games has subsequently led to unintended and deleterious consequences for the environment.

The empirical focus in this thesis will be on those consequences that are ecologically harmful, in other words, those that have been determined to be substantively irrational from an ecological point of view. Both human and non human species in the Winter Olympic locations suffer from the negative ecological consequences of reshaping nature. Examples of indicators of these consequences that will be examined are: soil erosion, avalanches and rock slides, contamination of lakes and rivers, depletion of clean water sources, air pollution, depletion of nonhuman species and habitat destruction for nonhuman species.

A New Ecological Dimension of Rationalization

The fourth part of the Weberian framework that is pertinent to the Winter Olympic Games concerns the way in which modern society has attempted to deal with the harmful unintended consequences of rationalization. Weber predicted that the trends of rationalization, for all their countervailing tendencies, would not reverse themselves in the foreseeable future (Weiss 1987: 159). According to Weber (1930: 181), the powerful modern economic order

"...is now bound to the technical and economic conditions of machine production which today determine the lives of all the individuals who are born into this mechanism, not only those directly concerned with economic acquisition, with irresistible force. Perhaps it will so determine them until the last ton of fossilized coal is burnt."

Statements such as this have been interpreted by Mommsen (1987) as "self-denying prophecies", advanced to provoke humanity into dealing with the irrational consequences of rationalization. Rationality is more likely to be intensified than reversed as we deal with its irrational consequences by means of more advanced forms of rationality. The rationalization process is therefore best seen as the intensification of rationality (Albrow 1987: 171). According to Albrow (1990: 196), Weber concluded that Western rationalism contained an inherent dynamic and motivation to continually develop technically better solutions to enduring problems.

Part of this dynamic involves the way irrationalities are dealt with, namely by further attempts at rationalization (Murphy 1994: 13). More powerful calculation in production and more highly coordinated modes of interrelation between the sectors of society are developed (Albrow 1987: 172). Postulates of substantive rationality begin to be used to

steer the process of formal rationalization (Weiss 1987: 161). As "value standpoints (such as the rights of the individual, the just provision of material and cultural goods, or ecological protection) become increasingly explicit, their implications developed and made more rational" (Albrow 1987: 171), practical action is modified. With respect to the environment, the demand (growing in intensity) to stop progressive exploitation and destruction of natural resources may require not lesser but greater rationality, deeper scientific understanding, and more refined and efficient technology (Weiss 1987: 161), including "ecologically-friendly" products and know-how. It may also require more efficient organizational apparatus to control the behaviour of consumers, polluters, industrialists, and land developers, etc. Such an intensification of rationalization based on the goal of "sustainable development" (World Commission on Environment and Development 1987) and "greenness" has become prominent in the last decade. Environmental movements and the demands they make for more ecologically rational behaviour are a part of this reaction against ecological irrationality.

From Weber's prognosis that there is a strong likelihood of further development of rationalization to rectify the unintended irrational consequences of previous rationalization, we may derive a fourth hypothesis in relation to the Winter Olympic Games.

Hypothesis IV:

The harmful unintended consequences of the Winter Olympics have in turn spawned further attempts at rationalization in order to correct ecological irrationalities, that is, they have promoted the addition of a new ecological dimension to the very concept and process of rationalization, and in particular, to the rationalization of the Winter Olympic Games.

This will be documented by investigating the evolution of 1) discourse concerned with the environmental impact of the Winter Olympic Games and 2) action taken to make those games less destructive to the local ecology. Indicators of further attempts at rationalization to correct the ecological irrationalities of the Winter Olympic Games are press releases and government publications, on the discourse side, and policy implementation and monies spent on the environmental action side. Thus this thesis seeks to help us understand how the ongoing process of rationalization works by focusing on 1) transformations of the Winter Olympic Games and 2) how ecological problems are caused and dealt with.

Possibilities of Ecological Rationality

The Weberian approach also yields a more speculative hypothesis concerning the possibility of either reform or a revolutionary transformation of society, and with it a similar transformation of the Winter Olympic Games. Weber's theory is a theory of both the "possibilities and limitations of political democracy in an industrialized and bureaucratized society, a theory that Weber considered not only empirically valid but politically realistic..." (Roth 1978: xxxiv).

Weber argued that rationalization and centralization of power cannot be completely eliminated. "Domination in large-scale communities was for Weber the only historic inevitability" (Roth 1978: C). The necessity of efficiency and specialization in any social organization in modern industrial society will always entail some form of domination.

Furthermore it is dangerous, according to Weber, to attempt to eliminate formal rationality and rely solely on substantively rational ethics, an "ethic of conviction", which characterizes revolutionary politics espousing utopian solutions. This is because, Weber warns, "The final result of political action ... regularly stands in completely inadequate and often even paradoxical relation to its original meaning" (Weber 1967: 117). Those who believe that rationalization and domination can be eliminated through revolution, those who are guided by solely an ethics of ultimate ends, by the goodness of their intentions or the intrinsic rightness of their goals, without foreseeing and taking responsibility for all possible consequences, paradoxically risk creating even further domination and more irrational consequences. For example, Weber predicted that a revolutionary socialistic form of organization would create a state that required a still higher degree of formal bureaucratization than capitalism (Weber 1978: 225). Evidence seems to indicate that his prediction was correct. We have since witnessed ecological destruction in socialist states equal to or greater than that which occurs in the capitalist world. Notwithstanding its faults, a political democracy provides a system of checks and balances against the centralization of power through the struggle between many centres of power, many interest groups, and different value orientations.

Weber also warns us that because of value relativity, there are no utopian solutions. There is no scientific way of determining the right cause or ultimate worldview because of the infinite number of value orientations that exist, among which we simply must choose. "(T)he ultimately possible attitudes toward life are irreconcilable, and hence their struggle can never be brought to a final conclusion. Thus it is necessary to make

a decisive choice" (Weber 1967: 152). Therefore, Weber does not offer a vision of the ideal, substantively rational society or the ideal ultimate value commitment because of the non-rational and arbitrary nature of choosing ultimate value commitments (Brubaker 1984: 44).

Although irrationalities cannot be entirely eliminated, it is still possible to redirect rationalization and limit forms of domination as well as ecological irrationalities. While a loss of freedom and environmental degradation may result from rationalization within the spheres of economic production and bureaucracy, other kinds of rationality can enhance freedom and environmental goals. The kind of rationality Weber proposed is an integration of commitment to ultimate goals (value rationality) and reasoned analysis that takes into consideration means and consequences (instrumental rationality), which he referred to as an "ethic of responsibility". For Weber,

"there has always existed the possibility - even though in greatly varying measure - of letting an *ethical* and rational regulation of life arise. This may occur by the linkage of such an ethic to the tendency of technological and economic rationalism" (Weber 1967: 284).

Weber placed hope in the role of charismatic authority in the form of "innerly called" political leaders, and social movements to generate these new value orientations and redirect the intensification of rationalization. Weber saw charisma as the "other great revolutionary force" (apart from rationalization) which may "effect a subjective or internal reorientation" and "then result in a radical alteration of the central attitudes and directions of action with a completely new orientation of all attitudes toward the different problems of the world" (Weber 1978: 245).

Therefore, rather than attempting the illusory project of eliminating rationalized institutions, it is better to limit the centralization of power in these institutions by integrating substantive rationality **and** formal rationality. This is accomplished through the pressure for reform that new social movements and their political leaders put on the state and enterprise. An ecological worldview that advocates protecting the environment can be rationally argued as a means of ensuring the survival of the human species. Therefore, from a contemporary Weberian standpoint, the best way to counter the magnification of ecological irrationality is to extend rationality in the form of rational reflection, reasoned argument and debate oriented around a new ecologically ethical world view. Ecological movements and ecologically responsible leaders can constrain the power of rationalized institutions and redirect the rationalization process away from its present destructive path and steer it towards a path of ecological rationality. Responsible and ethical use of rationalized science and technology and bureaucratic organization can minimize and correct ecological irrationalities.

Extending Weber's analysis to the Winter Olympic Games, we can formulate the following hypothesis:

Hypothesis V:

The best chance of solving the ecological problems resulting from the Winter Olympic Games consists of reforming those Games to take into account and correct their ecological consequences, thereby intensifying rationality by incorporating into it a substantive ecological dimension.

A speculative hypothesis concerning future action such as this can not be confirmed or refuted as directly as the previous descriptive or explanatory hypotheses concerning past

or present action. The intensification of rationalization and ecological reform of the Winter Olympic Games examined in this thesis may none the less yield some evidence concerning the plausibility of this hypothesis. We will therefore examine in the analysis that follows, especially in Chapter 6, the results of this investigation that may have a bearing on this hypothesis.

Decentralization and Ecological Rationality

There is a competing hypothesis concerning the possibility of a revolutionary transformation of society and by extension, of the Winter Olympics. It has been elaborated in the work of Murray Bookchin, which is similar to that of Weber in its analysis of domination but differs in its utopian conclusion. Bookchin does not see rationalization as a whole as the source of modern problems and irrational consequences. For him it is certain aspects of rationalization, namely, centralization, hierarchy and domination, that are the source of modern problems and the very roots of the ecological crisis. Bourgeois domination and centralization of technology and abundance in the hands of capitalists and of the bureaucratic state (or authoritative state socialists), have permitted the manipulation and exploitation of the environment on an unprecedented scale (Bookchin 1986: 57). And "the attempt of bourgeois society to control and exploit its environment, natural as well as social, has devastating consequences" (Bookchin 1986: 57). This intensification of consumption, production, industrialization and urbanization is in the process of reversing the evolutionary clock to a planetary state incapable of supporting complex life forms (Bookchin 1992: 222).

Centralization has led to other devastating consequences; a loss of freedom and a loss of values, both of which contribute to the degradation of nature. First, Bookchin maintains that when individual freedom is eroded by the centralization of power in bureaucratic forms of organization, public as well as private, this leads to environmental problems. Because ordinary citizens do not participate in the day-to-day decision making and formulation of social policy that affects their lives and communities, decisions which are harmful for the environment are taken in the interests of industrial and political elites remote from the consequences of those decisions. Urbanization, in addition to drastically "devouring" the countryside, has also devoured town and city life (previously based on mutual aid) and has swept away the civic and agrarian institutions that provided autonomy to the individual (Bookchin 1992: 2-3).

Secondly, Bookchin maintains that ecological degradation is also partly due to the lack of ethical control (ethical control being what Weber identified as substantive rationality) over "instrumental reason" and "neutral" science (Bookchin 1991: 271).

"If we mistrust reason today, it is because reason has enhanced our technological powers to alter the world drastically without providing us with the goals and values that give those powers direction and meaning" (Bookchin 1991: 271).

Nevertheless, from Bookchin's standpoint, ecological reform or incorporating an ecological dimension into rationalization as the Weberian approach would suggest, will not suffice to achieve an ecological society for the following reasons. Ecological reform, what we have identified as the intensification of rationalization guided by a substantive ecological dimension, will not eliminate the centralization of power in bureaucratic hierarchical forms, but merely regulate them. For Bookchin, creating an ecological society requires

eliminating centralization and domination entirely by decentralizing cities, the state, agriculture, industry, energy, and the centralized economy. Ecological reform does not go far enough in limiting exploitation of the natural environment because it is based on a system that presupposes growth.

"Attempts to 'green' capitalism are doomed by the very nature of the system as a system of endless growth. Whatever may be the destiny of capitalism as a system that has 'internal limits' economically, we can emphatically say that it has external limits ecologically." (Bookchin 1989: 93)

Without a radical revolution in values towards an ecological ethic, society will continue to use reason, science and technology to enhance domination over human beings and over nature. Incorporating an ecologically rational dimension into rational organization only limits the power the bourgeoisie and centralized institutions have to exploit the environment. For Bookchin, this does not suffice.

Bookchin proposes an alternative solution to the ecological crisis and other irrational consequences of centralization. The solution entails establishing a new goal: the complete elimination of centralization and hierarchical organization and the establishment of local self-governance and small-scale participatory forms of organization. This, he argues, will lead to a new ecological paradigm. The ecological ethic Bookchin proposes is the focal point around which all humanity must unite, form a cohesive revolutionary movement and build new forms of government based on the ideals of direct democracy.

Through complete decentralization and elimination of all hierarchical forms as such, society will be reconciled with nature. Utopia can be achieved. Bookchin calls the absolute negation of the state "anarchism" - "a situation in which men liberate ... all the

immediate circumstances of their everyday lives" (Bookchin 1986: 63). The absolute negation of the city will be community - in which the social environment is decentralized into ecologically balanced communes. The absolute negation of bureaucracy will be face-to-face democracy. The absolute negation of the centralized economy will be regional ecotechnology - a situation in which the instruments of production are molded to the resources of an ecosystem. The absolute negation of the patriarchal family will be liberated sexuality. The absolute negation of the marketplace will be collective abundance and cooperation (Bookchin 1986: 63).

Bookchin hypothesizes that small-scale participatory forms of organization will make the management of society accessible to ordinary citizens (Bookchin 1992: 284) and prevent corporate and economic interests from taking precedence over issues of ethics and ecology. Two suppositions, which differ greatly from Weber's analysis, underlie Bookchin's belief that participatory forms of organization can be achieved. In contrast with Weber, Bookchin maintains that efficiency in production and organization do not require hierarchical, bureaucratic forms of organization. Mechanized production, technological advance, efficient distribution and the society of abundance these imply, can be accomplished through participatory democratic forms of organization. Specialization and professionalization are not necessary in Bookchin's view because all citizens are competent to run the affairs of their own community and local government. Secondly, whereas Weber sees the vast majority of humans as imperfect, inherently weak, and unable to do justice to the obligations of responsible leadership (Brubaker 1984: 97), Bookchin would entrust the affairs of society to ordinary citizens because he sees human

nature as inherently good, cooperative, and capable of attaining his high "eminently human" standard of citizenship.

In summary, in Bookchin's view a "generalized revolution - complete and totalistic" (Bookchin 1986: 55), that is, the complete decentralization of power and the abolition of all forms of hierarchy and domination, is the only possible, albeit utopic, project to safeguard the ecological integrity of the planet.

From the preceding explanation of Bookchin's approach, we are able to formulate the following alternative speculative hypothesis regarding the possible solutions to the ecological problems resulting from the Winter Olympic Games.

Hypothesis VI:

The ecological problems resulting from the Winter Olympic Games can only be solved by the elimination of hierarchy in all its forms and its replacement by small-scale, participatory communal forms of organization.

Reforming the Olympics and incorporating an ecological dimension into their organization may mitigate environmental damage, but Bookchin's standpoint implies that the elimination of environmental damage requires that the organization of the Olympics be decentralized and brought to the municipal level. Establishing democratic power of ordinary citizens over their communities (and of athletes, participants and spectators over their sports) will prevent the degradation of both freedom and the environment. Although this speculative hypothesis cannot be verified in the same way as the first four, its plausibility in comparison with the competing Weberian hypothesis (Hypothesis V) will be examined in the light of the results of our study, especially in Chapter 6.

These hypotheses form the skeleton that structures this thesis and unites its theory and the empirical investigation. In the chapters that follow evidence will be sought that confirms or refutes these six hypotheses. They are listed here together so as to help keep the logical structure of the thesis in mind during the empirical investigation.

Hypothesis I (descriptive):

There has been a rationalization in the Weberian sense of the Winter Olympic Games.

Hypothesis II (explanatory):

The rationalization of the Winter Olympic Games has resulted in an attempt to master and reshape nature in the locations where those games took place.

Hypothesis III (explanatory):

The reshaping of nature that has resulted from the rationalization of the Winter Olympic Games has subsequently led to unintended and deleterious consequences for the environment.

Hypothesis IV (explanatory):

The harmful unintended consequences of the Winter Olympics have in turn spawned further attempts at rationalization in order to correct ecological irrationalities, that is, they have promoted the addition of a new ecological dimension to the very concept and process of rationalization, and in particular, to the rationalization of the Winter Olympic Games.

Hypothesis V (speculative):

The best chance of solving the ecological problems resulting from the Winter Olympic Games consists of reforming those Games to take into account and correct their ecological consequences, thereby intensifying rationality by incorporating into it a substantive ecological dimension.

Hypothesis VI (speculative):

The ecological problems resulting from the Winter Olympic Games can only be solved by the elimination of hierarchy in all its forms and its replacement by small-scale, participatory communal forms of organization.

CHAPTER III

RESHAPING NATURE: CALGARY 1988

The Commercialized Games

The Calgary Olympics, at a price tag of \$1 billion (Quinn & House 1987: 42), were spectacularly more expensive than all previous winter Olympics. This was more than double the projected cost when Calgary was awarded the Games in 1982, five times more than Sarajevo in 1984 and ten times more than Lake Placid in 1980 (Leighton 1987: 30). The Calgary Olympic organizing committee, Olympiques Calgary Olympics (OCO), raised more than \$400 million (Canadian) from the sale of television rights, sponsorship and ticket sales, while government contributions exceeded \$425 million (Quinn & House 1987: 42). The focus of the Calgary Games was on "delivering a product", international marketing of the Olympic experience, the glamour of the event, and expanding spectator capacity (Quinn & House 1987: 42).

The escalation in cost and this new focus suggest that the Olympic Games are increasingly being integrated into the capitalist market. There has always been a certain degree of commercialization of the Games (See Chappelet 1991: 203-4), but a number of developments indicate that commercialization of the games has radically expanded, especially in the 1980s. This in turn lends support to Hypothesis I, that there has been a formal rationalization in the Weberian sense of the Winter Olympic Games.

Television and Corporate Sponsorship

Two clear indications of this commercialization of the games and their integration into the capitalist market are 1) the influence of television on the games and 2) the importance of corporate sponsorship. Television payments for the rights to screen the Olympic Games have become the most valuable source of revenue for the IOC and Olympic organizing committees, American television payments being their largest single source of revenue, and these revenues have not ceased to grow. At the Rome Olympics of 1960, television payments amounted to just \$1 million U.S. (Simson & Jennings 1992: 11). At the 1968 Mexico Olympics, TV paid \$10 million (ibid: 54). However, American television networks realized that the Olympics were good business; they drove up ratings, attracted advertisers and created big profits (Simson & Jennings 1992: 54). By 1988, the American network NBC TV paid \$300-\$500 million U.S. for the rights to cover the Seoul Olympics (Min 1987: 138) and payments for the Calgary Winter Olympics were over \$400 million, ABC TV alone paying over \$300 million (Simson & Jennings 1992: 143). It is therefore no surprise that as the Olympics' most important benefactor, TV networks can influence how the Games are run, from scheduling events to match U.S. prime time television, to modifying the rules and the way the competitions are organized¹, to imposing demands on the construction of the sport venues. The latter, as we will see in the chapters that follow, can have repercussions for the environment.

¹ For example, at the behest of American television networks, the Winter Olympic games were lengthened from 12 to 16 days, starting in 1988 at Calgary, and inaugurated on a Saturday in order to give the networks three weekends instead of two, of prime time advertising (Chappelet 1991:126).

Thanks to the exclusive niche the Olympics now occupy in the media market, corporate sponsorship has become almost equally important to the Olympic movement as TV revenues. Whereas twenty-five years ago the policy of the International Olympic Committee (IOC) was to prevent commercial exploitation of the Olympics and prevent sponsorship, "the five linked rings are now one of the worlds more valuable commodities in monetary terms" (Simson & Jennings 1992: 100). After the commercial success of the 1984 Los Angeles Summer Games, which raised more than 125 million dollars, (almost the equivalent of TV payments) by launching an exclusive sponsorship program with sixty companies, the IOC under the presidency of J.A. Samaranch, began to overtly commercialize the Olympics (Chappelet 1991: 203-207). ISL - a private international sports marketing company set up by Horst Dassler, the owner of Adidas and friend of Samaranch - took on the IOC's new fund-raising programme. It succeeded in convincing all 150 national Olympic committees to sign TOP (The Olympic Programme) and sell their rights to market the Olympics in their own countries back to the IOC (Simson & Jennings 1992: 100). "Buying out the rights of each NOC, by guaranteeing them more cash than most could ever raise themselves was a costly affair" (Simson & Jennings 1992: 103), and this necessarily raised the price ISL sought in sponsorship contracts. For the 1988 Olympics, nine multinationals (principally American) signed up, paying more than \$100 million for the exclusive rights to market the Olympics (Simson & Jennings 1992: 103; Chappelet 1991: 207). (The Calgary Olympic committee received 12 per cent of this while ISL retained 20 percent; Chappelet 1991: 207.) In addition, each Olympic organizing

committee can inflate its own revenues by developing its own national marketing project distinct from the product categories of TOP (Chappelet 1991: 209).

The magnitude of corporate sponsorship revenues is of course linked to the prestige of the Olympics, but above all to the massive media coverage of the Games. Accredited journalists at the Games have become more and more numerous (Chappelet 1991: 211). Five thousand media representatives attended the Calgary Winter Games compared with only 2600 athletes and officials (Olympic Review 1988 No. 243-244: 18). From the 1988 Winter Games onwards, the importance of the Olympic Games as a marketing tool for corporate sponsors indicates how fully integrated into the capitalist market the Olympics have become.

The Bureaucratized Games

The massive budgets of the Olympics in the 1980s also suggest that the financial position of the IOC has improved and that its administration has grown. It is to the changes in the structure and power of the IOC and the Olympic movement that we now turn to find evidence that confirms whether or not there has been a rationalization of the Winter Olympic Games through bureaucratization.

In the 1960s the financial position of the IOC was precarious, but thanks to corporate sponsorship and television revenues since 1980, it has an annual budget of \$20 million and assets of \$118 million (McDonald 1992: A9). It has grown from a staff of 11 to 90 with a wage bill of \$20 million Swiss Francs (Chappelet 1991: 95-96). Its self-styled and self-legitimizing commissions on various Olympic issues have grown from 7 in 1966

to 17 in 1992 at a cost of \$4.9 million Canadian. It also spends \$2.76 million Canadian on glossy publications and public relations campaigns (McDonald 1992: A9).

Since the 1980s the structure of the Olympic movement increasingly resembles that of a private multinational company with an administrative council. The membership of the IOC has grown from 64 in 1940 to 94 in 1990 (Chappelet 1991: 50). The executive board, originally a small group of 6 men formed in 1921 to add greater efficiency to the committee (Lucas 1980: 138), consisted of 11 people in 1991 and has not stopped growing in importance (Chappelet 1991: 53). In 1987, the IOC officially adopted an administrative structure and in 1989 it appointed both a general director and a marketing director. It now employs its own professional communications agency (The Grey Advertising Agency) in order to professionally control media coverage of its activities (McDonald 1992: A9).

The IOC has also reinforced its bureaucratic structure through the creation of both satellite organizations and links with independent organizations such as the international federations (IF) of each Olympic sport. In order to increase its efficiency as an international organization and to control participation in the Games the IOC has promoted the creation of National Olympic Committees (NOCs) in every country. There were less than 100 national Olympic committees in 1960; 70 more had been created by 1992 (Chappelet 1991: 55). The IOC also requires that every Olympic host city create an Olympic Organizing Committee (OOC), which is most often responsible to regional and national authorities but is closely supervised by the IOC. Since the Olympics in 1980, informal links between the OOCs and the IOC have been replaced by formal legal

contracts that the IOC draws up itemizing every condition the OOC must fulfil to guarantee successful Olympic Games (Chappelet 1991: 63). And since the 1988 Barcelona Games the same type of contracts were also drawn up between the OOC and each International Federation - a formula which will be repeated for future games (Chappelet 1991: 63).

These developments indicate that the IOC and the organizations which are part of the Olympic Movement have undergone a process of formal rationalization and transformation from a small, informal and unprofessional group of associations into a professional, hierarchical and complex Olympic bureaucracy. Technically speaking the IOC has become

"une entreprise multinationale de la branche spectacle... Progressivement il se consacre de plus en plus aux affaires afin d'entretenir sa taille administrative croissante et les besoins financiers de la famille Olympique" (Chappelet 1991: 253).

Not suprisingly, increased bureacratization of the games and their insertion into the capitalist market, favours the centralization of power in Olympic sport. Evidence includes the fact that positions of power in the Olympic Movement are occupied by people from similar socio-economic classes and that they often hold several high offices simultaneously. For example, the IOC is composed mainly of aristocrats, high ranking civil servants and senior officials including ambassadors, judges, senior sport administrators, lawyers and representatives of industry (Chappelet 1991: 51-52). Presidents of national Olympic committees often become IOC members and most presidents of the international federations achieved their position because they were already IOC members (Chappelet 1991: 48-49).

The fact that two exclusive agents, ISL Marketing and its spin-off competitor IMG (International Management Group) control the rights to globally market the Olympic Games and world championship events of the international federations, and earn more from these rights than the IOC or the majority of NOCs (Chappelet 1991: 213), indicates the concentration of power among a few sports industrialists. Power also remains concentrated in the upper echelons of the Olympic movement given that no democratic system of representation exists. Only the president of the IOC is elected by the members. Members and presidents of the international sports federations, national committees and special commissions are all appointed by the executive committee (Chappelet 1991: 48-49). The IOC maintains control over all aspects of the games including technical requirements, the definition of doping and the policing of it, and especially access to the competitions by refusing or allowing athletes to participate according to IOC criteria (Chappelet 1991: 223).

The Specialized Games

Specialization and professionalization are also important phenomena that characterize the rationalization process. It can be shown that both the Olympic movement and Winter Olympic Games have become increasingly specialized and professionalised.

Professionalism in the packaging and selling of the Olympic Games is a new phenomenon for the Olympic Movement (Lucas 1992: 78). Before the 1980s neither the IOC nor the international sports federations had any specialized marketing staff, but since

their entry into the media market, the IOC and IFs now depend on their own specialists or private marketing companies to generate enormous revenues (Simson & Jennings 1992: 109-110). The need to generate such revenues is also due to escalating specialization within the sports themselves and technological specialization. The Winter Olympics now require highly specialized facilities to be constructed and technologically controlled winter conditions that drive up costs. At the Calgary Olympics, for example, all the sports venues were built especially for those games with the exception of two existing ice arenas which were renovated. In addition to these expenditures, a major portion of Calgary's massive budget was devoted to technical solutions to the problem of ensuring that the games would have enough snow and ice.

Other examples of specialization within the Olympics include the quest for better athletic performances through specialized medical, physiological and biomechanical research, more scientific and efficient training, psychological therapy, and all kinds of artificial aids, the most important of which is doping. In addition, there has been a professionalization of the athletes themselves, unofficially through the introduction in 1982 of trust funds for "amateur" athletes receiving sponsorship payments, and more recently, in the form of the official admission of professional athletes into the Olympics beginning with the Calgary Games in 1988 (Chappelet 1991: 218).

In summary, we may conclude that there has been indeed increasing specialization, centralization, bureaucratization and integration into the capitalist market of the Olympic Games, including the Winter Olympic Games. Therefore, this confirms Hypothesis I, that there has been a rationalization of the Winter Olympic Games.

The Rationalization of Nature at the Calgary Olympics

Hypothesis II states: The rationalization of the Winter Olympic Games has resulted in an attempt to master and reshape nature in the locations where those games took place. Hypothesis III states: The reshaping of nature that has resulted from the rationalization of the Winter Olympic Games has subsequently led to unintended and deleterious consequences for the environment. In the following description of the venues at the Calgary Winter Olympics we will be looking for indications of the reshaping and artificialization of nature, and the unintended irrational consequences this produces.

The first outdoor venue, Canada Olympic Park, was constructed by the government of Canada at a cost of \$60 million (Olympic Review 1988, 243-244: 17). The 90 and 70 meter ski-jumping towers built there are now dominant intrusions on the skyline. Their construction involved a major earth moving project in which a giant landing bowl and amphitheatre were excavated out of the hillside (Leighton 1987: 34). Since chinooks in the area tend to dissipate snow from the ramps and present a danger to athletes, snow was trucked in from 100 kilometres away especially for the Olympics to solve the first problem, but the facility will always be subject to gusting winds. (These winds constitute an unsolvable problem because most jumpers consider the wind to be their worst enemy since they are faulted each time the body or skis waver; Olympic Review 1988, 243-244: 29).

Canada Olympic Park is also the site of the luge and bobsled course, Canada's first and one of the few in the world. The course is both incredibly costly (\$18.6 million) and hazardous; it requires a giant refrigeration system that pumps toxic ammonia through

80 kilometres of pipes in order to keep ice on the track (Leighton 1987: 35). Its location is impractical from a technical point of view because the area's consistent winds can melt the track or cover it with sand (which has occurred in competitions) and necessitates a complete de-icing and refreezing (Leighton 1987: 35).

The venues for the ski jump and the luge/bobsled resulted in significant alteration of the landscape, the construction of artificial slopes, artificial creation of snow and sophisticated technology to create artificial ice. This supports Hypothesis II. Support for Hypothesis III, however, is not as clear-cut because although unintended irrational consequences evidently exist for the human users of these facilities, ecologically harmful consequences are still potential ones. There is a risk of toxic pollution from the ammonia should an accident occur and the pipes leak or rupture, but no accidents have been reported. And although new urban constructions of this type tend to deplete wilderness space, the Olympic Park area had been already highly developed into a ski resort.

The next venue, Canmore Nordic Centre, the site of the cross country ski and biathlon events, situated about 100 kilometres west of Calgary, cost the Alberta Government \$31.3 million for all facilities demanded by the International Olympic Committee (IOC). Three million dollars was spent on the day lodge, \$15.4 million on a road and \$12.9 million on other facilities including a biathlon building and shooting range. All of these facilities were needed to meet Olympic technical requirements (Kariel & Kariel 1988: 6) confirming the idea that rationalization of the Olympics has led to both the economic and technological capability and a perceived need to reshape nature according to human requirements. Artificial snow-making equipment was installed as insurance

because the area is subject to chinooks, but it can cover only 10 of the 55 kilometres of trails and snow was to be trucked in from higher elevations for the Olympics (Lequire 1987: 46). This shift from the use of nature's snow to creating artificial snow to change an area's natural climate to suit human needs also supports Hypothesis II.

This venue was developed at the expense of a large wilderness area at the edge of Banff National Park north of Canmore, and since "Canmore has been designated as the major service centre for Kananaskis Country" (Kariel & Kariel 1988: 5), it threatens to encourage further development and tourism. Unintended and harmful consequences for the environment are therefore more apparent for the Canmore Nordic Centre than for Canada Olympic Park. Environmental groups have been trying to persuade the provincial government to purchase some land that is a critical wildlife habitat in the Wind Valley extending from the east boundary of Canmore, but there has been little sign that this is likely to happen (Kariel & Kariel 1988:6). There are other irrational consequences, including the high probability that the financial cost of the site will never be recuperated. Although it offers long term training, competition and recreational opportunities, it does not attract enough recreational skiers because the course is too demanding and scenically uninteresting, and for racers it is too far from major population centres (Kariel & Kariel 1988: 6). Given that the Canmore Nordic Centre has created permanent ecological damage yet may not even redeem itself through affordable long term human use, its conception demonstrates a completely instrumentally rational attitude towards nature on the part of Olympic organizers and a disregard for potential negative consequences in the future.

The development of Nakiska ski resort at Mount Allan, the site of all the alpine ski events, at a cost of \$30.3 million, was the most controversial venue on three accounts: i) the deficiencies of the course itself, including lack of snow, ii) environmental concerns, including the threat to wildlife, and iii) the selection process involved. First, the Mountain was deemed an unsuitable race site by the skiers and their associations. Ski Action Canada, a coalition of environmental groups and downhill skiers expressed concern about the lack of snow on Mount Allan, the possible shortage of water for artificial snow, the inadequacy of artificial snow, the dangerously high winds gusting as high as 110 km/h (Aikenhead 1988: 15), and the fact that the men's downhill course barely met minimum standards for Olympic competition (Kariel & Kariel 1988: 8; Geist 1987: 20-21). The Canadian Ski Association warned that the Mountain could potentially be a national embarrassment (Geist 1987: 21). What is remarkable is that 25,000 cubic meters of rock and earth had to be moved in order to remodel the mountain and create ski runs according to Olympic standards. After criticism from the Fédération Internationale de Ski (FIS) that the course was not up to international standards, the courses were widened and the grades sharpened (Aikenhead 1988: 15).

Not only were the natural slopes bulldozed and remodelled, but the natural climatic conditions of the mountain were replaced with artificial conditions. Five million dollars was spent on artificial snow-making machines (Leighton 1987: 37; Aikenhead 1988: 15) because, as Canadian Forestry Services studies show, the mountain had not had natural snow for 16 years previous to 1988 (Fitch 1986: 42; Keefler 1987: 42; Leighton 1987: 38; Jeffery et al. 1983: 47). Eastman Kodak, an official Olympic sponsor, offered to supply

its Snowmax system for the games' three outdoor venues, but the results of an environmental impact assessment of the system were still unknown. The system is claimed to boost snow-making capacity by 30% to 75% at any temperature below freezing using a solution of *Pseudomonas syringae* bacteria to enhance water crystallization (Lequire 1987: 46). However, officials admitted that the snow-making system might not be sufficient to cover the slopes due to higher than average temperatures the area experiences (Keefler 1987: 42; Lequire 1987: 46). A vacuum pipeline was installed to transport snow to the runs in anticipation of problems during the Olympics. In actual fact, snow had to be ferried from 8 kilometres away by trucks and helicopters and shovelled on to the ski runs by hundreds of volunteers to cover the ski runs for the games.

The second important issue with respect to the environment concerns the fact that the development of Mount Allan would endanger wildlife and a mountain peak that had been declared a rare and delicate ecosystem (Jeffery et al. 1983: 47). This area had been recognized for its exceptional wildlife by the Department of Recreation, Parks and Wildlife. In 1979, the Alberta Government made an interdepartmental agreement ensuring that Mount Allan would not be developed (Kariel & Kariel 1988: 8; Geist 1987: 21). In particular, ecologists warned that an exceptionally large and healthy herd of Big Horned sheep -- one of the last substantial herds in North America -- would suffer reduced lifespans, poor reproduction and eventual decline and extinction, due to the stress from the commotion of construction and the games themselves (Cotton 1983: E8; Cox 1985: C1; Fitch 1986: 42; Leighton 1987: 37; Pospisil 1984: 38,41). To minimize the problem government wildlife biologists embarked on a feeding program using strategically

placed hay to lure the sheep away from the crush of spectators, and barricades were erected to prevent spectators from approaching the animals (Lequire 1988: 39). With respect to other wildlife, whereas numerous elk had formerly been observed in what is now the Nakiska area, almost none have been seen since (Kariel & Kariel 1988: 8). In addition, a major wintering range of elk and moose was sacrificed to open up an alternative highway to relieve traffic congestion caused by the games. An Alberta cabinet decision made in 1976 to close the road in the winter was overturned at the request of the OCO (Cox 1987: C1).

The development of Mount Allan for the alpine ski events at the Olympics clearly verifies Hypothesis II. Despite all the natural limitations of establishing a ski resort there, it was decided to create the Olympic ski runs through a massive effort to beat nature: remodel the slopes, cover them with artificial snow and snow transported from elsewhere, and control the movements of the area's wildlife. Hypothesis III is also verified by the harmful consequences this attempt to master nature has had for the environment. They include the destruction of wildlife habitat on Mount Allan and in Kananaskis Country through the construction of a new ski resort for the Olympic venue, the construction and reopening of access roads, the endangering of wildlife, the depletion of clean water sources through snow making, potential water pollution from chemically aided snow making, and the noise and air pollution from increased public traffic to this resort destination.

The third element of controversy surrounding Mount Allan concerns the site selection process. Why develop a ski resort in such an illogical location? It pitted

environmentalists against the Olympics and the Olympics against the taxpayers for a ski hill that recreational skiers say they would not ski. There were, in fact, other alternatives.

Lake Louise ski resort was a proposed site, but the National and Provincial Parks Association of Canada was opposed to any significant development in Banff National Park, and the OCO was determined to develop new facilities as a heritage for Alberta (Nelson 1983: S3). Mount Sparrowhawk was the original choice of environmentalists, skiers and the IOC. An environmental impact study was done on it, and Calgary was awarded the Olympic Winter Games on the basis of a Mount Sparrowhawk development proposal. Nevertheless, the Alberta government rejected Sparrowhawk on the pretext that its slopes were dangerously steep and that it was too far away from Calgary, potentially incurring excessive road-building costs and making transporting athletes and the media inconvenient (Leighton 1987: 37).

Nevertheless, it appears that political and economic considerations were of greatest importance in the selection process. The decision to use Mount Allan had actually been made at least one year, if not several, before the official announcement in 1983. Peter Lougheed, then Premier of Alberta, decreed Allan the alpine venue as early as October 9, 1982, when the province and the OCO were still accepting tenders based on other mountains (Jeffery et al. 1983: 47; Horejsi 1986: 318 cited in Kariel & Kariel 1988: 7). The Alberta government had already spent \$30 million on a golf course and the infrastructure for an alpine village at the base of the mountain to promote Mount Allan as the jewel of its \$506 million development of Kananaskis Country (Leighton 1987: 37; Pospisil 1984: 40). Since the golf course was already constructed and Kananaskis

Village was to be established, there was a need for a winter facility to create demand for accommodation in order to make the project economically feasible (Kariel & Kariel 1988: 7). The prestige of a Mount Allan Olympics would be the spark needed to attract private investment. Political and economic rationalization were thus the source of ecologically irrational consequences.

Conclusion

The mutual dependence between the Alberta Government and private business investors illustrates what Weber described as characteristic of rationalization: the interdependency of state bureaucracy and capitalism. It also illustrates the powerful means these institutions have to accomplish instrumentally rational goals such as the government's agenda to develop Kananaskis Country and the OCO's agenda to leave new Olympic facilities as a heritage for Alberta. This leads us to conclude that formal rationalization has indeed influenced the Olympic Games and therefore confirms Hypothesis I. The Calgary Winter Olympics demonstrate how the rationalization of administrative, financial and technical means of the government, the organizing committee, the IOC, and private investors has increased their combined ability to stage much bigger, more expensive and more high-tech Winter Olympic Games than previously.

The Calgary Games also aptly confirm Hypothesis II in that they represent an attempt to master and remould nature. For the first time in history, all the Winter Olympic events took place on snow and ice entirely artificially fabricated (Chappelet 1991: 130). To speed up the process and to keep costs down in construction, large areas were often

bulldozed with the idea of later reclamation, rather than selectively cleared initially to minimize environmental damage (Kariel & Kariel 1987: 7). The Olympics in Calgary proved to be an expedient vehicle to push through the transformation of a wilderness area into a commercial resort. Kariel and Kariel (1988: 7) draw similar conclusions:

"...it is possible that the Kananaskis Country project would not have been completed without the boost of the Olympics. Planners were essentially executing decisions made at high levels of the provincial government, which virtually ignored public concerns and formal requests for public involvement that would have extended the time required to complete the project."

Lastly, Calgary's "big city" games confirm Hypothesis III, illustrating how the rationalization of the Winter Olympics has subsequently led to unintended and ecologically harmful consequences in both the short and long term. With the increased use of Calgary's Olympic winter sports facilities due to the publicity and prestige surrounding the Olympics, there is pressure to build more facilities. How much more development will take place in and near Calgary, Canmore and Kananaskis Country in response to public demand, to pressure from the tourism industry, or to pressure from political decision makers? What will be the implications for the adjacent parks and mountain regions?

So far, development has been made in response to user demand, to proposals from the private sector and demands from the Olympic Organizing Committees for grandiose and expensive facilities, rather than in recognition that resources may be limited and that controls on and limits to development are necessary. No environmental impact studies were done, and zero dollars of the development budget were allocated for environmental concerns (Horejsi 1986: 322-323 cited in Kariel & Kariel 1988: 8). In 1983, Alberta's Tourism Minister, Mr. Adair admitted (five years before the 1988 Olympics) that

a full impact study was not a prime concern because of "time constraints" (Jeffery et al. 1983: 48) Environmental considerations received a low priority in the development of both Kananaskis Country and the Olympics. The OCO failed to make early contact with environmental groups and no provisions were made for public consultation or input (Butlin 1982: B2). The developments went contrary to provincial and federal agreements on the environment², and they illustrated the inadequacies of the IOC with respect to environmental protection.

The Calgary experience demonstrated that the Olympic movement needs to be made more environmentally responsible and the development process for the Olympic Games needs to be made accountable or they will become just another environmental hazard. The growing recognition of the ecologically irrational consequences resulting from the reshaping of nature by means of technological rationalization became particularly acute as a result of the Calgary Olympics. This in turn led to attempts at future Olympics to incorporate ecological criteria into the very conception of rationality and its intensification. This will be investigated next.

² In 1979 the Alberta government signed an interdepartmental agreement not to develop Mount Allan and in 1981 Canada signed the World Conservation Strategy committing it to respect environmental values in major developments. (Geist, 1987: 21,22; Kariel & Kariel, 1988: 8)

CHAPTER IV

"THE MODEL ENVIRONMENTAL GAMES": ALBERTVILLE 1992

Just days before the opening of the 1992 Winter Olympic Games, Juan Antonio Samaranch, the president of the International Olympic Committee (IOC), declared that, "After entrusting the organization of the Games to major centres like Sarajevo and Calgary, it is time to try a return to the very heart of nature" (Martin 1992a: F1).³ When the Savoie was chosen for the Winter Olympics on Oct. 17, 1986, Mr. Barnier, M.P. for Tarentaise (and author of *The Ecological Challenge: One for All*), asserted that the natural environment would be respected, and that existing infrastructures would be used in such a way as to organise "model environmental Olympics" with "minimal economic cost and ecological impact" (FRAPNA 1991b: 1). These statements indicate that concerns about the environmental impact of the Winter Olympic Games have influenced the discourse of the Olympic movement. This in turn suggests the validity of Hypothesis IV, that the harmful unintended consequences of the Winter Olympics have spawned further attempts at rationalization in order to correct ecological irrationalities, thus adding a new ecological dimension to the rationalization of the Winter Olympic Games.

In the investigation that follows we will determine to what degree the Albertville Winter Olympics provide evidence of Hypotheses I, II and III, that is, evidence of formal rationalization, the reshaping of nature, and that harmful ecological consequences ensue, and to what degree they provide evidence of Hypothesis IV, that is, the addition of a new

³ With the exception of Lake Placid in 1980, since 1964, the Winter Games have been awarded to major urban centres (Chappelet 1991: 126).

ecological dimension to the rationalization of the Winter Olympics. In this process, we will also ascertain whether the Albertville Games actually were "model environmental games".

Formal Rationalization

In order to appease as many voters as possible and to distribute the games' economic benefits to as many communes and ski resorts as possible, the "Albertville" Games were actually spread among thirteen communities, over a vast stretch of 2,000 square kilometres of mountains in the Savoie region of the Alps (Economist 1992: 47). The complexity of holding the games over such an extensive mountainous area necessitated national and regional government contributions of \$1.5 billion over and above the \$850 million Olympic budget, to squeeze a generation of infrastructure development into a few years (Rose, M. 1991a: E7; Phillips 1991: 51). This frenzy of construction included 100 km of new roads, widening of existing roads, new bridges, viaducts, tunnels and railway stations, the extension of the TGV (Train à Grande Vitesse) to Bourg St. Maurice in the heart of the mountains, and new water purifying and sewage treatment plants (Rose 1991b: F1). The gigantism of the Winter Olympics, held not just in one city but in an entire region, was a potential cause of very widespread environmental degradation.

Not only did the Winter Olympics grow geographically, but the number of events and the number of participating countries have grown. The first Winter Olympics in Chamonix in 1924 had 14 events, yet through increased specialization within sport this

number grew to 47 at the Calgary games (not including the demonstration sports), and 55 events at Albertville in 1992 (Chappelet 1991: 129). The games have also grown with the changing political realities (in Eastern Europe and the former Soviet Union for example) as the International Olympic Committee (IOC) gives official status to newly formed National Olympic Committees (NOCs). Recognizing that the games are becoming too vast for one region to handle the heavy infrastructure and organization even in countries with wealthy central governments, IOC president J. A. Samaranch suggested before the opening of the Albertville Games that the IOC was considering holding the games in several regions or even in more than one country (Wilstein 1992: F65). The complexity and size of the games evidenced at the 1992 Winter Games confirms Hypothesis I, that the games have been rationalized in the Weberian sense and it is likely that this process will be intensified in the future. Further bureaucratization of the Winter Olympics occurs at the same time that additional attempts at rationalization are made in order to correct ecological irrationalities.

Despite a severe worldwide recession, the IOC was reaping record profits from both television and marketing revenues, indicating that the commercialization of the games has not abated. First, there are the millions from the world's television companies, \$633 million for the Barcelona Summer Games and \$289 million for the Winter Olympics in Albertville (Simson & Jennings 1992: 11). The Canadian broadcast rights went from the \$4.5 million CTV paid for the Calgary Olympics up to \$10 million CBC paid for Albertville (Martin 1990: C1). And while the American network CBS paid \$243 million for the Albertville television rights, less than the \$309 million ABC paid for Calgary in 1988

(Martin 1990: C1), other marketing revenues more than compensated for this decrease. The 7,000 media representatives in attendance at the Albertville Games (Campbell & Christie 1992: D1), up from 5,000 at Calgary, also indicate that the games have been further integrated into the media market.

Then there are the marketing revenues. Since the 1988 Games, more international sponsors have signed up with The Olympic Programme (TOP 2), (up from nine in 1988 to 12 international sponsors for the 1992 games) and the average sponsorship fee has almost doubled, from about \$12 million US to \$20 million (Marotte 1992: C2). TOP 2 raised \$170 million in 1992 from the sale of global marketing rights, \$14 million of which heads directly into the IOC's account (Martin 1992b: E2). And with the direction of the specialized marketing firm IMG (International Management Group), ISL's competitor, COJO, "le Comité d'Organisation" for the Albertville games, launched its own commercialization programme, "Club Coubertin", amassing 720 million French Francs from 12 large French enterprises (Chappelet 1991: 210). There is little wonder then that Jim Andrews, the editorial director of IEG Sponsorship Report, declared, "The Olympics are the biggest worldwide sponsorship opportunity there is," (Marotte 1992: C2). The increased importance of the media market and the increased commercialization of the 1992 Olympics therefore illustrate more than ever that Madison Avenue and the Olympic Movement work side by side. That is, in accordance with Hypothesis I, the Winter Olympic Games have been further integrated into the capitalist market.

Another aspect of this integration into the capitalist market is the intense competition among cities to win the right to host the Olympics because of the prestige

associated with them, the perceived economic benefits, job creation, enhanced land values, and market stimulus during and after the games. In recent years the bidding cities have each spent an average of \$10 to \$12 million on their campaigns (Wilstein 1992: F65). In 1992 the 13 cities competing for the Winter or Summer Olympics spent a combined total of \$76 to \$100 million on their bids -- an average of \$1 million for each potential IOC vote (Wood 1992: 33; MacQueen 1992b: C3). According to Ken Read, vice-president of the Canadian Olympic Association, "The Olympics are the single most significant tourist promotion a region can do," (Campbell & Christie 1992: D1). This tremendous increase in the market value of the Olympic Games, as companies and cities seek to raise their international profile via association with one of the most watched events in the world, indicates that a high concentration of power resides within the IOC, its movement, and their financial allies in television and private industry. This centralization of power, power to shape the global image of the Olympics, to shape the world of sport, and power to reshape an entire ecological region to suit their own needs is another indicator of formal rationalization and supports Hypothesis I. It is to the reshaping of the local environment at the 1992 Winter Games in Albertville, that we now turn.

The Rationalization of Nature at the Albertville Olympics

In the following description of the Olympic venues at the Albertville Olympics, as in the previous chapter, we will be looking for indications of Hypotheses II and III, of the reshaping and artificialization of nature and the unintended irrational consequences this

produces. However, we will also be looking for changes in the ongoing rationalization of the games, in particular, the ways in which ecological problems have been dealt with. We are thus seeking confirmation or refutation of Hypothesis IV, which states that the harmful ecological consequences of the reshaping of nature have spawned further attempts at rationalization to correct ecological irrationalities and promoted the addition of a new ecological dimension to the rationalization of the Winter Olympic Games.

There is evidence that, after the Calgary games, environmental considerations made their way into the Olympic movement's policies and into the rationalization of the Winter Olympics. One year after Albertville was awarded the Winter Olympics, the Ministry of the Environment and the local government of the Savoie Department signed a protocol on April 16, 1987 for the "valorisation du paysage et de l'environnement" (Saury 1991: 16). From a budget of over 1.7 billion French Francs, 20 million were allocated to revegetation, 30 million to architectural improvements, representing 3% of the total budget (Saury 1991: 16). The protocol also contained a study on landscape improvements in the Savoie, including an inventory of 900 "points noirs" which would be visible from principle transportation routes. The Conseil Général de la Savoie spent 2 million FF to treat 40 of these black spots on the countryside (Saury 1991: 17). In addition to this, the theme "Les Jeux Olympiques et la protection du milieu montagnard" was raised at the first conference of cities which had or would host the Winter Olympic Games, held in September 1991. These policies, allocation of funds, and new policy directions indicate that an attempt at rationalization to correct the ecological irrationalities

of the winter Olympic Games have been made by the organizing committees and the IOC, and in this manner substantiate Hypothesis IV.

The first and most controversial venue we examine is the luge and bobsled run at La Plagne, considered an "environmental sin" by even the head of the International Bobsleigh Federation (Christie 1992: A1). It involved the clearing of 6 hectares of forest and 70,000 cubic metres of excavation, which led to land subsidence (FRAPNA 1991b: 9) and made the location extremely dangerous and costly to develop. It was built in an avalanche area (an avalanche killed a man in December 1992; Dickey 1991: D9) and on unstable ground with underground springs that threatened to rupture the pipes carrying 40-45 tonnes of highly volatile ammonia used in its giant refrigeration system (Rose, M. 1991a: E7; FRAPNA 1991c: 21). A public inquiry in 1990 estimated that in case of a rupture, a fatal concentration of gas could travel 100 metres in 100 seconds (Dauphine Liberé 1990). The Conseil supérieur d'hygiène publique de France denounced the "unacceptable risk" faced by the local population and by the spectators. And the Minister of the Environment, Brice Lalonde, wrote to the Savoie Préfecture (municipal government) recommending that it prohibit the opening of the course (Le canard enchaîné 1992). But the course was ultimately opened. Safety measures amounted to issuing gas masks to the residents, who had never been consulted in the first place on the construction of a bobsled run that would twist through their village and that would involve three years of heavy construction (FRAPNA 1991b: 9; Lean & Keating 1992: E4; Christie 1992: A1; Rose, M. 1991a: E7).

Because of the construction complications and safety precautions, the price for the track rose from \$13.5 million to \$40-42 million (Dickey 1991: D9; Vancouver Sun 1992a: D12) and its maintenance will cost more annually (\$74,000/year) than can be recuperated by renting it out for training and competitions (Vancouver Sun 1992a: D12). This is extremely costly for a sport that had less than 200 participants in France before the Olympics (Christie 1992: A1).⁴ Like the Olympic bobsled track in Grenoble, which has not been iced for more than a decade (Martin 1990: C1), there is a strong possibility that the facility at La Plagne will not survive after the 1992 Olympics⁵ (FRAPNA 1991b: 9).

The luge and bobsled venue at La Plagne evidently supports Hypothesis II given that it resulted in a massive, permanent alteration of the landscape, and the use of sophisticated technology and engineering to put artificial ice on the track and to overcome the natural geology of the site. More so than in Calgary, this venue also supports Hypothesis III since the unintended and harmful consequences are numerous for both the natural environment (including deforestation, erosion, land subsidence and avalanches) and for the human community (including the loss of human life, the life threatening risk of toxic gases, a waste of public money, and hardship for residents).

The development of the other Olympic venues entailed a litany of assaults on the Savoie environment. The ski jump at Courchevel was originally to have been an "ecologically friendly" removable metal structure, which was also the least expensive

⁴ There are only 5,000 bobsled competitors in the world.

⁵ The bobsled at Grenoble was put up for sale for 1 FF (18 cents) to avoid the enormous cost of tearing it down. At the time it was built the Grenoble Olympic Games organizers gave assurances that the facility would become the permanent centre of French bobsledding and ski jumping (Wells 1992).

design submitted (Lean & Keating 1992: E4). However, the developers favoured a permanent concrete structure so heavy that it threatened to slide and had to be anchored to the mountain with 100 tonne piles (Lean & Keating 1992: E4). Twelve acres of forest were cleared and the mountain face was amended to accommodate the jump and the parking lots, while the extension of the altiport (airport) set off a landslide (Dickey 1991: D9; FRAPNA 1991b: 3,8; Christie 1992: A1). As at La Plagne, construction crews found unstable ground and springs that continue to make the site vulnerable to landslides and more than doubled the cost to \$24 million U.S. (Vancouver Sun 1992a: D12). Consequently, like the luge and bobsled site, the implementation of the ski jump supports both Hypotheses II and III with its construction of artificial slopes, heavy alteration of the mountain face and the dangerous "natural" disasters that resulted from this.

The cross country ski and biathlon venue at Les Saisies are reported to have destroyed rare high alpine marshlands. Despite the exceptional nature and fragility of the flora and fauna at Les Saisies -- it is considered practically unique in the French Alps and was protected by a departmental agreement ("arêté de biotope") -- it was decided to develop it, because as the organizers claimed, "l'aménagement et la protection du milieu naturel sont compatibles," (Courtemanche et Bareau 1991: 9). Thus the design and development of the trails and shooting range were subjected to supervision by a consortium of experts (from "la Direction Départementale de l'Équipement, la Direction Départementale de l'Agriculture et de la Forêt, l'Office National des Forêts, la Délégation Régionale à l'Architecture et à l'Environnement, le Comité d'Organisation des Jeux Olympiques (COJO), le Syndicat Intercommunal pour l'Aménagement du Col des

Saisies"), engineers, and scientific specialists on flora and hydrogeology. According to the environmental impact assessment commissioned by COJO in 1991 after construction was mainly completed, "Le souci a été constant de privilégier le passage dans des zones boisées pour éviter les tourbières tout en réduisant les coupes d'arbres au minimum indispensable," (Courtmanche & Bareau 1991: 9). This effort on the part of the organizers to take action to make this venue less destructive to the local ecology indicates that an ecological dimension has indeed been added to the rationalization of the Winter Olympics and indicates that Hypothesis IV is valid.

Nevertheless, FRAPNA (1991b: 6) reported that the multitude of trails and the large graded amphitheatre have destroyed this fragile habitat and that no consideration was given to protect the animal species there. The 110,000 cubic metres of excavation needed to create the stadium also resulted in pollution of the Nant Rouge River (Lean & Keating 1992: E4; FRAPNA 1991b: 6). Furthermore, the resort proposes to hand over its cross country ski trails to recreational motoring enthusiasts in the summer, to create an animal park with non-native animal species which will disturb the natural ecological balance, and is planning a golf course which will require the use of herbicides and pesticides to maintain the greens (FRAPNA 1991b: 6). Therefore, Hypothesis III can not be refuted. Although the rationalization process was intensified by the addition of environmental specialists to the planning committee and by "ecologically friendly" construction methods, this new ecological dimension was probably too late and too limited to prevent ecological irrationalities from occurring.

The women's and men's Olympic downhill ski runs were both bulldozed out of unspoiled landscape, where the ski resorts Meribel and Val d'Isère already had good ski runs. Meribel was also authorized to build new ski lifts at high altitudes in proximity with the Parc National de la Vanoise on Mont de la Chambre and a ski link with another village, Les Allues, through a zone rich in wildlife (FRAPNA 1991c: 21). Two hundred and thirty snow canons were installed at Meribel for the women's downhill (Coll 1992). And the ice rink built for the hockey competitions (at the summit of the mountain where it will see little use from rural communities) involved the diversion of the river Doron des Allues into a concrete culvert (Courtmanche & Bâreau 1991: 12). Both Meribel and Val d'Isère were allowed to develop another 22,500 and 50,000 square metres respectively, of urban facilities for the Olympics.

The men's run on the Face de Bellegarde was the most controversial because it was restructured specifically for television. The U.S. television network CBS wanted a difficult course that would launch skiers into the air at certain points and provide thrilling downhill shots for American television viewers (MacQueen 1992c: C4), which therefore translate into higher television ratings and advertising profits. To facilitate filming the entire descent and provide good camera angles, the Face de Bellegarde was "redesigned" by specialist Bernhard Russi (Olympic Review 1991: 69) and sculpted with dynamite and 40,000 cubic metres of earth moving (FRAPNA 1991b: 3). Increased risk of avalanches and landslides, and water depletion from artificial snow making have been the result of Val d'Isère's Olympic developments. These ski slopes are of such a high level of technical difficulty for skiers that they will rarely be used by the public

(Courtmanche & Bareau 1991: 10). This confirms Hypothesis I, II and III, demonstrating how the Olympics are increasingly shaped by a market rationality and how this ability of television networks to influence even the construction of the sports venues has serious repercussions for the environment in addition to other irrational consequences.

Brides-les-Bains, using the "cover" of providing the Olympic village (accommodation for the athletes), developed an additional 45,000 square metres of tourist facilities. It declassified a protected forest site, "le bois de Cythère", and cleared it to build a gondola to connect it to Meribel. The construction of the gondola, required clearing a path 6,375 metres long and 30 metres wide, erecting 50-60 pylons, and building 4 loading stations each with parking lots (FRAPNA 1991c: 21).

Les Arcs, the speed skiing venue, necessitated 200,000 cubic metres of excavation above the forest line, which created severe erosion and the destruction of small water courses. Because of the shortage of water due to the games, les Arcs had to be supplied by a pumping system and water source located 10 km away (FRAPNA 1991a: 18).

At Les Menuires, five hectares were cleared and remodelled for the slalom stadium (Courtmanche & Bareau 1991: 10). The resort has been obliged to construct reservoirs to feed the 190 new snow machines (FRAPNA 1991b: 6).

Tignes, the site of artistic and acrobatic skiing, moved 100,000 cubic metres of rock to develop new runs and added an underground funicular railway (authorised especially for the Olympics). The construction of the ski area and railway as well as the lack of water treatment facilities at its stations, has contributed to pollution of Tignes lake

(FRAPNA 1991b: 10). It has also allowed, on the Grande Motte glacier, the installation of a new ski lift, which now encroaches on the Parc National de la Vanoise (FRAPNA 1991c: 21).

For the ten resorts hosting the 1992 Olympic events, the Olympics were a means of expanding commercial development where it might never have been expanded previously. This "Olympic effect" enabled the building of an entire resort, La Tagna, merely to provide accommodation for the hockey competitors and journalists. Prior to the Olympics, La Tagna was unable to raise sufficient finances or justify its development. Twelve thousand hectares of forest were cleared to create this resort, that will be in competition with nearby Meribel and Courchevel, both large, well established resorts (FRAPNA 1991b: 8).

From the preceding description, it is undeniable that due to rationalization, there has been an attempt to master and reshape nature in the locations where the 1992 Olympic Winter Games took place, upholding Hypothesis II.

Long Term Effects on the Environment

The Albertville Olympics involved carving one million cubic metres of earth and rock out of the mountainsides (Lean & Keating 1992: E4), 30 hectares of deforestation and 320,000 square metres of new urban construction in an already threatened mountain setting (Rose, M. 1991b: L13). Because of this reshaping of nature, the Olympics have had and will continue to have deleterious effects on the environment over the long term.

Where ski runs used to follow the contours of the land, the mountain slopes are now "remodelled" to technical specifications of the IOC and sports federations. One environmental study agrees that

"(l)es gros terrassements engagés aux Arcs pour le kilometre lancé, à Tignes pour le stade de ski artistique et aux Saisies pour le stade de ski nordique et de biathlon, visent à mettre la morphologie des sites en conformité avec les exigences des épreuves sportives." (Courtmanche et Bareau 1991: 8)

But the deforestation, clearing of vegetation, bulldozing, and scraping of soil and rock from alpine pastures to create smooth ski runs, is responsible for accelerating the erosion of topsoil, which takes centuries to form (FRAPNA 1991b: 4). The scarred mountains around Albertville will be bare for 500 years and will never fully recover (Lean & Keating 1992: E4). Landslides and avalanches have been increasing under the impact of "reconstruction" of the mountains. For example, in 1981 at Les Arcs, 60 people died when a landslide of 300,000 tonnes of rocks and broken trees crashed into chalets and roads. Tree felling and bulldozing of runs were blamed (Dickey 1991: D9). In December 1991, an avalanche at Val d'Isère killed one person, injured more than a dozen others and seriously damaged a hotel, apart from clogging highways and stopping trains (Dickey 1991: D9). In addition, under pressure to increase revenues through new ski runs, developers have extended them into areas threatened by avalanches, building barriers on the mountainsides to fend off landslides and installing explosive devices for preemptive strikes on accumulating snow.

As at the Calgary games, natural snow and ice have been replaced by artificially produced snow and ice and a great effort is made to combat natural conditions.

Specialists, large teams of volunteers and the army were hired by COJO to either get the snow off the highways and prepare for avalanches and blizzards, or to try to keep snow on the ski slopes, ice on the bobsled run, and ice on the outdoor speed skating oval during warm weather. This Olympic phenomenon has contributed to the problems of water pollution and over-consumption of scarce water supplies in the Savoie. To ensure the presence of snow throughout the Savoie Olympic sites, batteries of snow-making canons, (which drain valuable water supplies at a rate of 50 litres per second) were installed with no study of their environmental impact (FRAPNA 1991b: 5). Even COJO's commissioned environmental study by CERREP confirms that, "des besoins nouveaux nés avec les installations d'enneigement artificiel ont exacerbé l'acuité du manque d'eau," (Courtmanche & Bareau 1991: 11). Artificial reservoirs have had to be created at high altitudes for snow-making and to cater to increased urbanization. Each summer, water pollution rises from the use of pesticides, herbicides and fertilizers. These chemicals are used on alpine meadows converted to golf courses and on the newly bulldozed ski runs that must be covered with grass to prevent erosion.

A third long-term effect of the Olympics is continued urbanization of wilderness and loss of wildlife. FRAPNA Savoie (1992) reported that due to the Olympic Games, "La faune est dérangée et disparaît, les grands espaces naturels sont de plus en plus banalisés, morcelés et aucune mesure de protection de ces milieux n'a été proposée en Savoie à l'occasion des Jeux Olympiques." Similar to the 1980 Lake Placid games and the 1988 Calgary games, where they took place in or near national parks, the Albertville Olympics took place in the buffer zone around the Vanoise National Park. Previously

protected forests lost their safeguards and 60 acres of forest were cut down (Lean & Keating 1992: E4). Major road works were pushed through quickly, at the least cost and without consultation, to meet the 1992 deadline. This was to the detriment of natural habitats along the route. Several rivers were diverted to accommodate roads and sports facilities. Environmental considerations and respect for the natural relief of the land were completely absent in the course of moving waterways (Courtemanche & Bareau 1991: 10), many of which now flow through cement troughs and will never recover their former biological importance (Courtemanche & Bareau: 11-12).

Lastly, the increased population in the Savoie during the Olympics and afterwards, will have obvious negative consequences for mountain ecology, including traffic jams on mountain roads, sewer system overflow into streams, increased air pollution, etc. In anticipation of the Olympics, the Savoie, with a population of 340,000, built accommodations for another 340,000 visitors (Dickey 1991: D9). For the Olympics alone, 1,500 athletes, 7,000 journalists and one million spectators were expected (Dickey 1991: D9). In expectation of increased traffic to the Savoie many resorts expanded their private airports and number of flights, which has increased the level of noise and atmospheric pollution disturbing not only wildlife but residents and tourists as well (FRAPNA 1991c: 21).

Not only have the games created new sporting facilities which eat into natural habitats, but the "Olympic contagion" will inspire more building and more resorts in the Savoie in the future. The Olympics have been used to launch property development on virgin alpine sites to salvage a failing ski industry. Many of the "Olympic" ski resorts in

the region, including Les Menuires-Val Thorens, Les Arcs, Pralognan and Tignes, are demanding property transfers that would allow them to extend their resorts with new ski runs, lifts and funicular railways into the Vanoise National Park and onto as yet untouched mountain areas (FRAPNA 1991b: 4). Expansion of ski resorts is caused by the need to make newly developed hotels and facilities "pay for themselves". Summer and glacier skiing, even in protected parks, and a whole range of après-ski or "instead of ski" tourist attractions are being promoted to keep the hotels full over a longer season (Redmont 1992: J2). Creation of new infrastructure ("l'autoroute Maurienne et un TGV Lyon - Turin") is already planned to service these renovated tourist spots, along with plans for further development of the agglomeration of Aix-Chambery-Montmélian (Saury 1991: 17). If "the Olympics are the single most significant tourist promotion a region can do," (Campbell & Christie 1992: D1), then the Savoie ski industry has had the best advertising in the world!

On the positive side, 14,000 new jobs were supposed to have been created by the Olympics (Campbell & Christie 1992: D1). They also created the obligation and freed up funds to provide long overdue essential services: improving highway access, building water and sewage treatment facilities and waste disposal plants. However, these municipal ameliorations, which were planned twenty years ago and should have been implemented anyway, do not justify an Olympic extravaganza.

Whether or not the Olympics brought long term jobs and economic benefits to the Savoie is debatable. The games did not "pay for themselves". The deficit, 280 million French Francs (\$55 million dollars), was picked up by the State and the local communities

paid 70 million French Francs (Boinet 1993). The ski resorts reported that business was good for the winter of 1993, but the townships in the valleys are in a "post-Olympic recession". Unemployment is back at its 1986 level in the Savoie (21.2 % compared to 10.5 % in France), (Boinet 1993). Thirteen Savoie villages were on the brink of bankruptcy after the Olympics (Economist 1992: 47). The principal victims: Brides-les-Bains (population 600) ran up a deficit of \$14 million building tourist luxuries and a gondola that threatens to be unprofitable (Rose, M. 1991b: C13); Pralognan-la-Vanoise (population 650), spent \$6 million on an ice rink and cannot afford to keep ice on it, much less meet payments on its \$1 million debt (Wells 1992; Economist 1992: 47) all just to host the demonstration sport of curling; La Plagne is in debt for 280 million FF and the luge/bobsled track's use is still limited due to the continuing problems with its foundations (Boinet 1993).

Conclusion

If the Calgary Winter Olympics demonstrated how formal rationalization has increased administrative, financial and technical means to stage bigger, more commercial and more high tech Winter Olympic Games, the Albertville Winter Olympics reinforce this conclusion. This was evidenced by the growth in television and marketing revenues for the IOC and the rest of the Olympic movement, the growth in the size of the games, the amount of infrastructure development they generated, and by the power of the ski and tourist industry to use the games to boost economic growth. It has also become increasingly evident that formally rational constraints and technical demands imposed by

the sports federations and by television networks have become increasingly strict and severe in their influence. The fact that there has been intensified rationalization of the Albertville Winter Olympics supports Hypothesis I.

The Albertville Winter Olympics represent an attempt to master and reshape nature that was far more intense than that at Calgary. This is not surprising given that the Albertville Olympics required the construction of twenty years worth of urban infrastructure and high tech Olympic facilities, not to mention controlling the natural climatic conditions, over a vast, mostly rural area in rugged mountain terrain. Not even COJO's commissioned environmental study could deny that the "souffle Olympique" has led to a modification of the environment. "...*(A)u travers de la propagation anarchique des zones d'activité, on assiste à une banalisation et à une artificialisation diffuses du milieu naturel*" (Courtemanche et Bareau 1991: 10). This blatant artificialization of nature confirms Hypothesis II.

The games at Albertville also support Hypothesis III, that the rationalization of the Winter Olympics has led to harmful ecological consequences. Ecologists argue that the Albertville Olympics were anything but "model environmental games". In their 30 page study, the Fédération Rhones-Alpes pour la protection de la nature (FRAPNA), the main environmental group in the Savoie area, concluded that the Olympics have already had "irreversible damaging consequences" on a fragile alpine ecosystem ("including deforestation, major earthworks and urbanization with its accompanying developments"), and that more ecological and social damage is to come (Rose, M. 1991a: E7, Rose, M. 1991b: L13; FRAPNA 1991b: 2). It became evident that the elevated technical and

logistical demands of the Olympic movement and their sponsors were in many ways directly responsible for the degradation of the Savoie environment (Perret 1992). Equipping the Olympics damaged fragile surroundings and entailed natural catastrophes, which include erosion, pollution, the disappearance of fauna and the shrinking of habitats. The harm from the Olympics has added insult to injury since the Alps are already affected by acid rain from industrialization and gross tourist developments attracting 50 million tourists per year (Lean & Keating 1992: E4). And like the natural parks around Calgary and Kananaskis, the Savoie's protected natural areas and national parks are under threat from post Olympic economic and political pressure to develop them for the tourist industry. When Samaranch declared that the Games would be returning to the "very heart of nature", he was not referring to a reintegration of sport with the natural environment, but to an imposition of devastating sport and tourist facilities in picturesque and relatively undeveloped wilderness areas. Our examination of the Albertville Winter Olympics has clearly led us to conclude that these were not the "model environmental games" Barnier promised.

Yet for the first time in the history of the Olympic Games, the word "environment" was associated with the Olympics and environmental issues were being addressed by the organizers. Courtemanche and Bareau (1991: 8) claimed that these Olympics provoked a consciousness raising regarding the environment among local authorities. According to Games spokesperson, Sylvie Gauron, "(COJO) took care of the environmental question....The mountains can be modernized and equipped and still be respected," (Lean & Keating 1992: E4). However, she also conceded that future Olympics should be

subjected to environmental impact studies before work begins and even the president of COJO, Michel Barnier admitted that "mistakes have been made" (ibid.).

Several factors explain these mistakes and why ecological damage occurred despite promises to prevent it. The policy of the Savoie Department to make environmental planning a part of the Olympics was formulated too late and perhaps underestimated the force of the Olympic machine, whose aim it was to produce a formidable amount of facilities and infrastructure in record time. Consultation of environmental groups by the Comité d'organisation des Jeux Olympiques (COJO), consisted of inviting them onto sites to see what precautions were being taken after the site was chosen and the plans had been made (Rose, M. 1991a: E7). The environmental solutions proposed by the organizers might have minimized the negative effects had they preceded the construction rather than accompanied it (Vivian 1991: 15).

The Department's policy was also extremely limited in its scope and superficial in its strategies. COJO's idea of ecological protection was "landscaping" to present a "green and pleasant, clean and modern" facade to "the world's cameramen", and to therefore attract more tourists and investors (Amboise-Rendu 1990: 320-21). Trees were planted along new highways and in front of "unsightly garages and transformers", metal crash barriers were replaced with "specially treated spruce", and hundreds of wood veneered garbage containers were installed in the villages (Amboise-Rendu 1990: 323). According to COJO's impact study, the alterations of mountain sites with heavy construction actually represented an amelioration of the old landscape and that rehabilitation of the sites with

tree planting would help to insert these technical facilities into the scenery (Courtmanche & Bareau 1991: 7).

Nevertheless, the Albertville Winter Olympics demonstrated that efforts are being made to correct ecological irrationalities and that these new ecological criteria represent the addition of a new dimension to the process of rationalization of the Winter Olympic Games. This therefore substantiates Hypothesis IV. There is also evidence that this process of "ecological rationalization" will be intensified. The debate on the relationship between sports and the environment has become global news. In 1992, the IOC was considering obliging candidate host cities to present ecological and economic impact studies to be eligible for the Olympics (La Tribune de Genève 1992). Environmental groups (such as Alp Action) and some sports federations are pushing Olympic officials to consider reusing existing facilities in place of "recreating them every four years... at the expense of the globe's dwindling undeveloped mountainscapes," (Wells 1992). The most prominent environmental group in the Savoie, FRAPNA, recommended that "the organizing bodies of the Olympics include within their ranks, specialists (with veto power) qualified in protection of the environment" (FRAPNA 1992). And some sports federations, such as the Bobsleigh Federation, have formed committees to help future Olympic organizers avoid "environmental sins" in the selection and construction of new sites (Wells 1992). At the end of the 1992 Winter Olympics, the pressing question was whether ecology would become a part of the new Olympic ideal in Norway in 1994 and beyond (Amboise-Rendu 1992). The advance of this new ecological dimension which has been added to the very concept and process of rationalization will be examined next, with the

objective of also assessing whether this represents the best chance of solving the ecological problems resulting from the Winter Olympic Games.

CHAPTER V

"THE GREEN GAMES": LILLEHAMMER 1994

After the intense criticism of the Albertville Olympics for their negative impact on the environment, expectations were high that the organizers of the Lillehammer Olympics in 1994 would pay more than lip service to ecological questions. Indeed, it seemed that the Olympic movement was at last taking the environment seriously and that ecology would become part of a new Olympic ideal. The Lillehammer Olympic Organizing Committee (LOOC) claimed that it was possible to put on a winter sports spectacle without damaging the environment (Deister 1993: E6). The committee declared that the Lillehammer Winter Olympics would be the first "Green Games" and that their objective was to give the Olympic Movement a third dimension --the environment-- in addition to sports and culture (LOOC 1994a: 1). These would also be "compact games" where the sports venues would all be in close proximity, avoiding the infrastructure development and environmental destruction that took place at previous games, especially at Albertville. The IOC's glossy public relations publication, The Olympic Review, claimed that Lillehammer's Olympic facilities "have been designed in such a way as to minimize damage to the countryside and environment," that they "satisfy the most stringent ecological requirements," (Olympic Review 1993: 21) and that "the protection of the environment...is totally in keeping with the ideals of the International Olympic movement" (Olympic Review 1992: 95, 96). According to IOC president, J. A. Samaranch, "As we enter the third millenium, it is the IOC's chief duty to respect the environment" (Deister

1993: E6). And the mere fact that the Olympics were taking place in Norway, a country with some of the toughest environmental legislation and an internationally recognized "green" reputation⁶, promised positive change. The Prime Minister herself, Gro Harlem Brundtland, stated that "Norway wants to set a good example with the 1994 Games of how environmental considerations can be integrated into work on major projects" (LOOC 1994b: 8).

These public statements indicate that the recognition of ecologically irrational consequences, resulting from the reshaping of nature by means of technological rationalization, has grown considerably since the Calgary and Albertville Olympics. The addition of a new ecological dimension to the Winter Olympics is now an explicit goal. This, in part, supports Hypothesis IV. Thus, in the following investigation we will examine in greater detail evidence regarding Hypothesis IV, including 1) the evolution of discourse concerned with the environmental impact of the Winter Olympic Games and 2) actions taken to make these games less destructive to the local ecology. We will investigate the swiftly developed ecological consciousness within the Olympic Movement and apparent harmonizing of goals among the LOOC, the IOC and the Norwegian Government, to better understand the motivations behind the transformations of the Winter Olympic Games. Therefore we seek to determine whether the process of formal rationalization of the Winter Olympic Games has been significantly altered in an ecological direction.

⁶. Norway was the first country to create, in 1972, a Ministry of the Environment. It pioneered environmental taxes; polls shown that one third of Norwegians would be willing to accept a reduced standard of living to achieve better environmental safeguards (Koring 1993: A10); and Prime Minister Gro Harlem Brundtland headed the UN World Commission on the Environment and Development, which elaborated and popularized the concept "sustainable development" and led to the 1992 Earth Summit in Rio de Janeiro.

In addition, this chapter will examine whether the Lillehammer Winter Olympic Games, despite ecological reforms, have had harmful consequences for the environment through the reshaping of nature and increased formal rationalization (thus, providing evidence of Hypotheses I, II and III). Lastly, we will search the evidence for possible answers to the following questions. Is this reform of the Olympics, by intensifying rationality and incorporating into it a substantive ecological dimension, the best method of solving their negative ecological consequences as our speculative Hypothesis V suggests? Or are there better alternatives that might eliminate ecological damage, such as a radical decentralization of the Olympic Games into small-scale, more participatory communal forms of organization as suggested in Hypothesis VI?

Environmental Rationalization at the Lillehammer Olympics

The Lillehammer Olympic Organizing Committee (LOOC) claimed that its environmental goals for the 1994 games were threefold. The first was "to minimize the negative environmental impact made by the Lillehammer Games themselves", the second, "to use the Olympic network to influence others to minimize their own effect on the environment", and the third "to create effective, practical solutions and develop new know-how to meet the environmental challenges" (LOOC 1994b: 1-2). These were later reiterated as follows:

- * to safeguard the interests of the community in the Olympic region
- * to promote environmental awareness
- * to create sustainable development and economic growth
- * to accomplish an environmentally friendly development of Olympic sites (LOOC 1994a: 2)

To implement the policies and projects that would reflect these objectives, the LOOC established an environmental control department and various internal and external environmental committees.

First, several general measures were taken, which according to the LOOC, would minimize the negative environmental impact made by the Lillehammer Games on the local community. These included introducing separation of waste and recycling at the sports venues and public places, using "ecologically friendly" disposable products, promoting "environmentally friendly" public transport, and promoting "ecologically friendly" office materials in the Olympic municipalities.

Secondly, several projects were implemented, which according to the LOOC, would promote environmental awareness. These included an environmental education programme in the schools (mainly to publicize the LOOC's efforts), beautification of the city "to remove or camouflage distractions and eyesores" (Green Issues, Feb. 94: 6), tidying up of the roads and railway corridors to present Lillehammer in the "best possible environmental light" (LOOC 1994b: 14), architectural guidelines and the use of natural products for temporary structures and the Olympic arenas to reflect the "cultural landscape". Although billed as environmental measures, they served mainly to establish a green profile for the games in the eyes of the public and to ensure that visitors' impressions were as favourable as possible.

The third goal, to promote ecologically sustainable economic growth was seen as part of the process of developing "new know-how to meet the environmental challenges" (LOOC 1994b: 1-2). To this end, the LOOC claims that it committed sponsors and

suppliers to cooperate on promoting the environmental profile of the games, through developing ecological products⁷ that would reduce waste and pollution, for example. Thus Coca Cola was to develop a recyclable cup which would "reduce the volume of waste during the Games by several tons" (LOOC 1994b: 5), Kodak was working on an environmental safety plan for chemicals used in photo production during the Games, and Volvo was to supply electrical cars for the LOOC. The LOOC also claims that it cooperated in research on environmental techniques and technology, such as "environmental audits", the development of new wood lamination techniques, less harmful fuels, and three high tech projects, ENSIS (an air and water quality surveillance system), ENVITRANS (environmentally friendly transportation) and WASTERED (waste and sewage disposal) (LOOC 1994b: 15).

Lastly, to minimize the negative environmental impact of the venues, environmental standards were set for their construction and dismantling, environmental fines (of up to \$10,000 each; Kalosh 1993b: B3) were set for unnecessary tree-felling, natural materials such as wood and stone were to be used, energy saving methods of heating, cooling and construction were to be chosen, and they were to be designed to be "aesthetically appealing" and "to harmonize with landscape" (Vollan 1992: 28; LOOC 1994a: 3). In addition, LOOC claims unnecessary transportation was avoided by making use of excavated soil and rocks in the vicinity (LOOC 1994a: 4).

⁷ Among these ecologically friendly products: bioethanol, a renewable, carbon dioxide-neutral gas made from potatoes to fuel the Olympic torch; edible plates made from potatoes (Kalosh 1993a:56), and cutlery made from corn for fast food services at the Olympics (Bernard 1993: 16).

These policies and their implementation represent a substantial change in the way the Winter Olympic Games have been organized. They signal that a new value-standpoint of ecological protection has come to steer the process of formal rationalization because solving ecological problems of the Winter Olympic Games has become integral to their planning. This focus on more rational planning, more efficient technology, new products and more refined knowledge illustrates particularly well an intensification of rationalization based on the goal of sustainable development. The fact that the Norwegian scientific community can claim that "a wealth of new problems to solve... sprang from the environmental imperatives of the games," (Green Issues 1994: 9) illustrates particularly well the inherent dynamic of rationalism to continually develop technically better solutions to enduring problems (Albrow 1990: 196). Clearly hypothesis IV is substantiated by the Lillehammer Olympic experience.

A Modicum of Environmental Reform

Nevertheless, the majority of these environmental measures did not significantly reduce the impact of the Winter Olympics on the local environment. Since the LOOC did two years of planning, from 1988 to 1990, before it paid any attention to environmental aspects, the major objectives for the total development project of the games had already been defined. Consequently, much of the LOOC's effort is related to partial aspects of the games, such as the choice of materials, heating/cooling technology, and transport. Though they are important, "they hardly represent any greater consciousness of the environment than any decent developer would take into account today" (Selstad 1993:

16). Half of the environmental projects (including: beautification, cultural designs, using natural products and environmental education) were largely symbolic and would not make any substantial change according to one study (Selstad 1993). This work was done mainly to present Lillehammer to a world-wide audience and to the millions of visitors in the best possible light as a clean, modern and attractive tourist destination. This was, therefore, a public relations or marketing endeavour more than an environmental strategy.

Participation in research and requirements related to sponsors were also largely symbolic. Selstad (1993) reported that none of the research being developed in Lillehammer has any connection to the environment. The LOOC's requirement that sponsors demonstrate their commitment to defend the environment by two or three green projects has the ambiguous effect of allowing Olympic corporate sponsors to pass themselves off as serious ecologists by exploiting the "green" image of the games (Bernard 1993: 16).

The other half of these environmental projects (the "green office", using environmental products, public transport and recycling) had a more material objective but were only marginally effective. The "green office" project was a positive development, but was already taking place independently of the Olympic Winter Games. Recycling and waste separation at the arenas failed according to the Ministry of the Environment because they were not visible enough (Aarhus 1994: 2), but a state-run waste handling plant established for the region on the occasion of the Olympics is a positive development and has made Lillehammer a leading municipality in recycling. Public transport services were improved, but to the credit of the municipality not the LOOC. However, the

environmentally friendly transport project ENVITRANS was put on ice because of lack of funds, and also because Olympic sponsors Statoil and Volvo did not want propane and electric cars promoted on a wide scale (Stromo 1994). Overall, though, the Olympic Games contributed to air pollution in the area through increased motor traffic (Selstad 1993: 11). During the Olympics air pollution was twice as high as normal (Aarhus 1994). In sum, the general measures taken to reduce the environmental impact of the Lillehammer Olympics demonstrated increased ecological awareness, but were not substantially effective.

Lillehammer's "Green" Olympic Facilities

We now turn to the development of the specific Olympic sports venues to determine whether or not the measures to minimize their negative effect on the environment were successful. Despite the organizers' environmental action plan there is some cause for caution. Indeed it is difficult to believe in the sincerity of the LOOC's plans to respect the environment given that "the organizers view the games as a way to quickly transform a farming region into a winter sports magnet" (Glauber 1992: C3). All of the sporting facilities were entirely new and permanent structures, built especially for the Olympics in a relatively undeveloped area around Lillehammer, a mountain town of 23,000 (Mellgren 1993: C11). This was in spite of concerns aired by IOC officials in 1992, to award the games to sites that have already held successful Games, since upgrading and reusing existing facilities is less harmful to the environment and less costly,

than building new facilities (Financial Post 1992: 25).⁸ A total of twelve major sport venues were required in addition to the construction of four other facilities: a radio and television centre, a press centre, accommodation for media and accommodation for the participants (the Olympic village).

The first Olympic venue we examine is the ski jump within the Olympic Park. On the one hand this venue demonstrates a familiar attempt to reshape nature with some attendant harmful consequences. Although the ski jumps are supposed to be unobtrusive because no large towers are being built, their construction involved the removal of 200,000 cubic metres of rock and soil to build them partially into the ground. Television producers also demanded that the natural slope be "rotated" -- i.e. remodelled -- in such a way as to permit optimal light and camera angles on the concrete jumping hills (Green Issues 1994: 6). Their construction has led to a loss of farmland and they have significantly changed the character of the landscape in the farming and recreational zone above Lillehammer. They "will remain Lillehammer's most visible memento of the 1994 Olympics" (Vollan 1991: 12). On the other hand, some of these harmful consequences were mitigated. One step taken by the organizers was to minimize the amount of soil and rock excavated at the ski jump and nearby ice rink, Hakon's Hall, through computer models and then to deposit it as close to the site as possible to minimize transport. And according to the organizers, the top soil that was excavated will be replaced and most of the area will be put back into agricultural production.

⁸ Even the president of the LOOC, Gerhard Heiberg, dismisses the idea of rotating the Olympics to previous host countries because "it would be wrong to stop the normal selection process" and deny other cities the same chance that Lillehammer had" (Forde 1993: 2).

Other venues in the Olympic Park include the freestyle skiing facility, Hakon's Hall and Kristin's Hall for ice hockey, and the Birkebeineren Nordic Centre for the cross country skiing and biathlon events. A large area was deforested to create the freestyle ski area (Kalosh 1993b: B3) and it has strongly affected the landscape because its rectangular forms are difficult to conceal. The hockey rink, Hakon's Hall was built into the ground like the ski jump to make it appear less dominant. It cost 228 million NOK to build this 10,000 seat arena using the latest energy efficient technology especially for the Olympics (Aarhus 1993: 1), but it will never be used again as a hockey rink because it is too expensive to maintain, especially in a town of only 23,000. Right beside it sits Kristin's Hall, an ice rink built with the sole purpose of providing training space during the games. Both ice rinks occupy what were once open fields with great agricultural and recreational value.

The LOOC claims that at the Birkebeineren nordic ski stadium, vegetation and forests were disturbed as little as possible and excavated in such a way that "excess mass removal and damage to the terrain were minimized" (LOOC 1994: 21). Yet in fulfilment of the IOC's requirements, the tracks are as wide as two lane highways, 35 kilometres of trails had to be cleared, bulldozed, built up and linked by a complex system of bridges (Aarhus 1994). Due to spectator orientation and relatively new skate-skiing techniques, this venue requires a lot of space and to a considerable extent it impairs both the forest and the recreational possibilities in the area (Selstad 1993: 7).

The Birkebeineren Nordic Centre was originally to have been in Forberg in accordance with environmental considerations of the municipalities and the wishes of

local residents. However, it was moved to Birkebeiner in the mountainous area above the Olympic Park at the demand of the National Cross Country Ski Association and the International Federation for cross country, who would not accept the Forberg location for world standard competitions. This is another example of the way bureaucratic rationalization of the Olympics has been a source of ecologically irrational consequences confirming Hypothesis I, II and III.

The Olympic Park, which contains 7 of the 12 facilities, lent credence to the concept of "compact games", but also led to a concentration of problems. The development of hotels and restaurants have already been allowed in the park and in the long term it may contribute to the development of a tourism magnet and "economic satellite" in the mountain area just north of Lillehammer (Selstad 1993: 8). Roads built to reach the ski jump and the hockey rinks in the Olympic Park resulted in the Mesjua river being diverted and even replaced with pipes in several locations (Leonardsen 1994). However, these were called environmental roads because they diverted traffic out of the centre of town.

Similar to the Olympic Park, the International Broadcast Centre (necessary to serve the thousands of media technicians at the games) built at Storhove on the outskirts of Lillehammer, led to the direct loss of agricultural land and landscape of great aesthetical value. To make use of the building, it is supposed to be converted into a regional college in the near future. However, the facility will also lead to the creation of an economic satellite which will generate unnecessary traffic from Lillehammer to this area. This

contributes to local and global air pollution, and to urbanization that is quite contrary to the planning objectives of the municipality over the last twenty years (Selstad 1993: 8).

It became apparent that holding compact games was not actually feasible and several venues were relocated to other towns partly so that there would be less pressure on the environment from these large installations in one spot.

The luge and bobsled venue, moved 15 km out of Lillehammer to Hunderfossen, was designed to "merge naturally with the terrain" (Forde 1993: 2) and subjected to various efforts to prevent the dangers and ecological harm that Albertville's track presented. The Lillehammer Olympic committee ensured that "optimum security" was employed for its ammonium refrigeration systems -- the cooling pipes were embedded in concrete culverts alongside the concrete track (Forde 1993: 2) and any leaks of toxic ammonia could be detected immediately by a newly developed electronic monitoring system (Olympic Review No.320, 1994:300). Nevertheless, the Ministry of the Environment admits that from an environmental point of view, the luge/bobsled run should never have been built (Aarhus 1994). Even though Norway did not have any competitors in this sport, it was obliged to build this facility, which will create a 1 to 2 million NOK deficit every year to run, but which is still too expensive to dismantle (Aarhus 1994). In addition, CBS television rigged up television platforms at the bobsled track (and ski jump) and required trees to be cut down because they obstructed the cameras, all free of environmental fines that were supposed to be levied (Olerud 1994). It is apparent that the Olympic network's bureaucratic requirements and television's private economic interests took priority over environmental considerations at this Olympic venue.

Fifty kilometres from Lillehammer, a brand new ski resort, Kvitfjell, was created for the Olympic downhill events even though it will probably incur a deficit to run because of its distance from major population centres. Closer to Lillehammer at the Hafjell ski resort, a large area was cleared to create a new slope for the slalom events beside an existing slope that has long been used for international competitions (Kalosh 1993b: B3). The deforestation at both venues, and the gigantic pictogram of a running torch bearer that was cut out of the forest in the mountain opposite Hafjell, fly in the face of LOOC's own policy to impose stiff fines on contractors for cutting trees unnecessarily (Kalosh 1993b: B3). The IOC and international sports federations required that artificial snow be made at all the alpine skiing and ski jumping events to ensure perfect slopes, even though there was more than enough natural snow at all the venues (Aarhus 1994). It is curious that the environmental standards set for the venues would not prohibit artificial snow-making, (banned in Austria) when little exact information is known about its environmental consequences (Aarhus 1994). Evidently, Olympic policies still primarily serve formally rational criteria for successful Games confirming Hypothesis I, and that this has led to the artificialization of nature, confirming Hypothesis II.

Although the Olympic venues were supposed to be "designed to harmonize with the landscape", the hockey arena at Gjøvik was housed inside a mountain "*blasted* out of the living rock" (Vollan 1992: 30). Twenty nine thousand truckloads (250,000 cubic metres) of rock were removed to construct the world's largest public underground arena inside a mountain (Calgary Herald 1993: C6; Green Issues 1993). This 5,500 seat hockey rink, like Hakon's Hall in Lillehammer, will not be used as an ice rink after the

Olympics because it is simply too expensive to maintain. All the Olympic communes will be in competition to attract events to pay for the large ice halls that have built.

The last of the venues, the Olympic indoor speed skating oval at Hammar, perhaps best illustrates the dualistic goals of the organizers and Norwegian government -- to limit the environmental harm of the Olympics while simultaneously ensuring the success of the Olympics as a sports event and promoting economic development. While a monumental style was supposed to be "deliberately avoided in favour of an emphasis on preserving the natural and cultural landscape", Hammar's indoor ice oval, "the largest of its kind in the world" (Olympic Review 1992: 31), was built on an international waterfowl reserve -- one of the most important in the world. Although the LOOC claims that "the location of the hall was determined by agreement with Norwegian nature conservation organizations" (LOOC 1994a: 4), it was a confrontation with the public and environmental groups, intervention from the federal government, and a visit from Samaranch, the IOC president, that forced LOOC to compromise. In the end they conceded to rotate the hall's entrance away from the marsh and to plant a "protective" zone of trees and bushes between the back of the hall and the nesting grounds (Ostling 1993). The Ministry of the Environment paid 5 million for the construction of a new road to facilitate these changes⁹ and 1 million NOK for the expansion of the bird sanctuary to compensate for the lost habitat (Aarhus 1994).

On the positive side, this incident marked a turning point in the way the games were organized. Thereafter an informal consultation process between the LOOC, the

⁹ In addition 7 million NOK was paid to the Hammar municipality in compensation for cancelling the development of a shopping mall nearby.

Ministry of the Environment and environmental groups -- reorganized under the name Project Environment-Friendly Olympics (PEFO) -- was put into practice for the remainder of the Olympic organizational process. This demonstrates that the environmental reform movement has begun to transform the Winter Olympic Games, supporting Hypothesis IV.

Yet, this high tech indoor speed skating oval would never have been built in this unsuitable location if it were not for pressure from the Olympic network's sporting interests. In the original plans, a temporary, open-air ice oval (favoured by popular opinion) was to have been installed in Lillehammer. But in an effort to sway the International Speed Skating Federation, which was anxious to create new facilities that would live up to the calibre of Calgary's skating oval, the National Sport Federation of Norway promised that Lillehammer would build a new indoor skating oval (there are only two others in the world) if they were awarded the games (Lesjo 1994). This is indicative of how the process of rationalization with its spiralling imperatives of specialization continues to lead to decisions that are harmful to the environment when ecological criteria are either absent or not given priority.

From the preceding description it is clear that through environmental policies and actions, some of the harmful ecological effects of the Olympics were lessened. This supports Hypothesis IV, that reform of the Winter Olympic Games, by taking into account and correcting their ecologically irrational consequences, has occurred. The Lillehammer Games also provide evidence that supports Hypotheses II and III. It is clear that environmental reform did not substantially reduce the attempt to master and reshape nature (through heavy construction, remodelling of landscape, deforestation, and artificial

snow and ice-making, etc.) in order to build very technically specialized facilities and to hold commercially successful games. In the same manner, environmental reform (the "greening" of the games) did not solve all the ecological problems that result from the Winter Olympics because Lillehammer and its surrounding area suffered increased urbanization, pollution and loss of agricultural land and wilderness. There is also the distinct possibility that pressure on the local ecology will increase as Lillehammer attempts to utilize the Olympic facilities to hold international competitions and increase tourism.

Lillehammer: Formal Rationalization Intensified

The "greening" of the Lillehammer games did not radically alter the formally rational character of the games. It did not slow the intensification of formal rationalization of the Winter Olympic Games (in terms of rising costs, growth of the Olympic Movement and of its demands for infrastructure, growth in its revenues, the importance of the Olympics as a marketing tool and the importance of the media to the Olympic Games). In this sense, Hypothesis I holds true: the Lillehammer Games represented an increasing concentration of power within the Olympic bureaucracy and its corporate allies in industry and the media market, that is, an increasing institutional rationalization of the Winter Olympic Games.

Billed as low cost, human-scale games, Lillehammer's operational costs started at 100 million Norwegian Kroner (NOK), with a state guarantee of 1.8 billion NOK (approximately \$266 million US) (Calgary Herald 1989: A2). By 1990, the Norwegian Parliament allocated 7 billion NOK (over \$1 billion U.S.) to the Lillehammer Olympics

(Lucas 1992: 76), nearly four times what was first agreed upon. Total investment for staging the XVII Winter Olympics was put at 13 billion NOK (Fossli 1990: 438). The Olympics are the largest project that Norway has undertaken since the construction of petroleum platforms in the North Sea (Bernard 1993: 14). The LOOC's chairman, Mr. Heiberg reported that getting budget approval was a battle due to the political controversy of allocation of funds to a "prestige project at a time of record unemployment and... other domestic social welfare problems" (Fossli 1990: 439).

The Olympic Movement and the games themselves have expanded with the addition of teams from twelve new states from the former Soviet Union and Eastern European republics and four new events since Albertville (Calgary Herald 1993: C6; Fossli 1990: 439). This means that twelve new National Olympic Committees and four new federations have joined the Olympic bureaucracy.

The logistics of organizing the Olympics in their present format means that infrastructure development cannot be avoided. Even though these were to be compact games, the Lillehammer Olympics actually took place in six cities and towns (Glauber 1992: C3) and considerable infrastructure expansion had to be undertaken. This included improving sewage and refuse disposal, telecommunications, and train service as well as constructing new roads. Road and railway investment of \$180 million U.S. and 1,500 shuttle buses were necessary to accommodate 1,500 coaches, 8,000 media personnel, 3,000 police, 30,000 special guests and the 100,000 spectators expected every day to be travelling between the venues and to and from Oslo (Forde 1993: 1). Total infrastructure costs are estimated at \$270 million U.S. (Mathisen 1993: 1).

The Lillehammer games also confirm Hypothesis I in the sense that their importance as a marketing tool has perhaps increased with the intensification of rationality in an environmental direction. Marketing revenues from TOP, The Olympic Programme, continue to grow, with twelve international corporations paying an average of up to \$40 million US each for worldwide marketing rights connected with the games. Like Albertville, Lillehammer launched its own marketing programme, "Team Birkebeiner", signing up nine Norwegian companies as "official sponsors" for a total contribution of \$80 million US, and 17 companies as "official suppliers" for a contribution of \$22 million US (Message Olympique No.38-1994: 78). But more than ever the Olympics are a marketing device for new products and technology. According to the Norwegian Ministry of the Environment,

"Lillehammer has demonstrated that a great international event like the Olympic Games can be a splendid showcase for the scientific and commercial achievements made possible by environmentally friendly planning and organization" (Green Issues 1994: 11).

Thus there are high expectations for potential sales abroad of the environmental surveillance system, ENSIS. The Gjøvik cavern ice rink was built primarily as a showpiece for Norwegian technology. Japan and Korea, countries running out of flat land for housing and commercial developments, have already purchased the high tech research studies for tunnelling techniques used at Gjøvik (Thurow & Lescaze 1994: D3). Moelven Limtre AS, the company which built the speed skating oval at Hammar, could have built a conventional arena but instead built a 12,000 seat structure with the world's largest roof span made of wood, in order to market their new wood lamination techniques around the world (Thurow & Lescaze 1994: D3). Norway's Olympics can hardly be said

to encourage limits to growth given the excellent marketing they have provided for companies like this one, which envisions erecting wooden indoor-soccer stadiums across the northern tundra, throughout the equatorial rain forests and in the deserts of the Middle East (Thurow & Lescaze 1994: D3). Thus the Lillehammer Games have shown that economic expansion is still one of the most important elements of the Olympics.

Lastly, the greening of the games has certainly not altered the importance of the media to the Olympic Games. The television rights to broadcast the Lillehammer Winter Games equalled Calgary's record, and compared to Albertville, all contracts have increased between twenty and forty percent (Message Olympique No. 38 1994: 79). CBS Television paid \$300 million U.S. for them and planned to send 1,500 technicians to Lillehammer (Lucas 1992: 76). Five other television networks also bought broadcasting rights. And the number of media representatives went up from 7,000 at Albertville to 8,000 at Lillehammer (Campbell & Christie 1992: D1; Forde 1993: 1).

In addition, the IOC's professional self-marketing demonstrates how much they rely on the media market. By deciding to alternate the Winter Games with the Summer Games every two years (starting in 1994) so that IOC sessions always coincide with an edition of the Olympics, the IOC has ensured that the Olympic movement will receive constant media coverage. More importantly, the IOC's revenues, closely tied to the Olympics and their television coverage, will be more regular and the networks will be able to offer more for the Olympic television rights if the summer and winter editions do not occur in the same fiscal year (Chappelet 1991: 126). It was in fact the idea of a director of an American television network to modify the scheduling of the winter games so that

the networks purchasing the transmission rights to the Olympics could better spread their expenses over two years rather than one (Chappelet 1991: 126). In sum, the use of the Olympics as a rational means of marketing has been intensified.

Obstacles to a Substantive Ecological Reorientation of the Winter Olympics

Perhaps the reason for the ineffectiveness of the environmental measures at the Winter Olympic Games is the fact that substantively rational criteria in an ecological sense are still dominated by formally rational, economic criteria. In other words, the basic goals of the Winter Olympics have not been changed. When we examine the motivation for greening the Lillehammer Games it becomes clear that the Olympic Movement had not incorporated an ecological dimension into its own policies. It was neither the IOC nor the LOOC that instigated environmental measures. In fact, there was no mention of "green Olympics" in Lillehammer's application to the IOC. What was more important to the IOC was the concept of a "compact Olympics" -- all the necessary surroundings within easy reach -- and the natural charm and intimacy of the small town (Lesjo 1994; Selstad 1993: 2).¹⁰

It was a combination of initiative from the Norwegian government and pressure from local environmental organizations that ensured that ecological considerations be included in the planning. The government wanted the games i) to be a showcase for

¹⁰ It is significant that environmental considerations were not involved in the IOC's choice of Lillehammer as host of the 1994 Winter Olympics. This is despite the negative publicity about the relationship between the Olympics and the environment and the fact that Lausanne, the seat of the IOC, had to withdraw its candidature for the 1994 Olympics because the city voted in a referendum against hosting the Olympics for environmental reasons. (Chappelet 1991: 247).

Norway's environmental policies and ii) to be organized in accordance with the principles of sustainable development as outlined by the UN Commission on the Environment, chaired by Gro Harlem Brundtland, the Prime Minister of Norway. The Ministry of the Environment was essential, for without a major public contribution to environmental strategies (8 million NOK/year), it would not have been possible to "green" the games. The regional and local authorities followed up in most of the planning. And although the Norwegian Society for the Conservation of Nature protested against holding the Olympic games initially, it adopted a strategy of cooperation with authorities in order to make the games as environmentally friendly as possible. It lobbied parliament and won a budget of about \$100,000 a year to form an independent watchdog group called Project Environment-Friendly Olympics (PEFO) (Kalosh 1993b: B1).

The organizing committee, LOOC, was forced into an environmental orientation by the government and PEFO. And the IOC did not put up much resistance, realizing that "not to react to increasing public concern for the environment would lead to a negative attitude towards sport in general" (Olympic Review 1993: 22), including the Olympics. In fact, Samaranch himself welcomed the association with the environmental group.

Therefore, the original internal goal of the LOOC (which like most Olympic organizing committees represented prominent business interests) was not significantly altered by this new orientation. Their goal was to use the games as a regional political instrument -- to improve town infrastructure and boost the economy, particularly in travel and tourism (Selstad 93: 2-3). "To create new regional growth, especially in tourism, is the first and primary goal of (the) Olympic Winter Games '94" (Selstad 1991: 226). This

explains why many of the environmental measures that were undertaken were only partial and largely symbolic. According to the ministry of the environment, the environmental standards for the construction of the venues were introduced too late to become really effective (Aarhus 1994: 3; Selstad 1993: 16). And as mentioned previously, the LOOC had already spent two years planning before they defined their environmental goals (Aarhus 1994: 3).

The IOC demonstrated that they are still oriented by technological requirements of the Federations, requirements of television networks and the goal of putting on a highly marketable sports spectacle. Even though, according to the rhetoric, "the protection of the environment is totally in keeping with the ideals of the International Olympic Movement", the LOOC and the IOC did what had to be done to make the Winter Games appear green in the world's eyes, but not more. The Olympic Movement cannot be considered a leader, but rather a follower in the process to green the games.

The Lillehammer "Green" Winter Olympics have none the less confirmed Hypothesis IV. They represent a more serious attempt to correct ecological irrationalities than what was undertaken at the Albertville Olympics and thus provide evidence of an intensification of ecological rationalization of the Winter Olympic Games. A new ecological dimension has been added to the rationalization of the Winter Olympic Games, but in a limited way.

We have shown that these games still represent an attempt to master and reshape nature (Hypothesis II) and that this has led to certain harmful ecological consequences (Hypothesis III). This may be so because the new ecological dimension has not

significantly altered the process of formal rationalization of the Winter Olympic Games. This is evidenced by the continued use of the Olympics to boost economic expansion, technological development, and to increase the administrative and economic power of the Olympic Movement and its sponsors, indicating that Hypothesis I holds true. On the other hand, the Olympics have been influenced by the environmental movement, through the Norwegian government's efforts to promote sustainable development and through the pressure group politics of independent environmental groups, hence some substantively ecological steps have been taken.

Ecological Reform or Social Revolution

After this assessment of the success of greening the Lillehammer games, we are in a better position to speculate whether or not this is the best method of solving ecological problems they generate, and thus compare the feasibility of Hypotheses V or VI.

One perspective might lead us to conclude that the greening of the Lillehammer Winter Olympics was a partial success and a positive development. For one thing the infrastructure that the games generated led to improved refuse disposal, recycling and improved public transport by train, which are positive developments for the community and for the environment. In the Municipal Environmental Coordinator's opinion, "The Olympics were a tool to make Lillehammer more environmentally friendly" (Stromo 1994). For another, the development of tourism that the Olympics spawn is a more environmentally friendly method of boosting the local economy than industrial

development. Tourism is based on nature and in one sense contributes to maintaining environmental quality.

Lastly, even though Lillehammer's Green Games did not bring about significant material change, they have brought about symbolic change that may pave the way for future decisions with more important ecological consequences. Hope resides in the fact that the Norwegian public opinion polls have revealed that 67 per cent of Norwegians said that care for the environment was the most important element of staging the Olympics (Kalosh 1993b: B3). Even though neither the LOOC nor the IOC were driving forces in this "green" transformation, they have shown that the Olympic movement is open to influence. The LOOC may be correct when they say that "the Games represent a unique opportunity for defining and communicating ideals, ideas, values...across cultural, political and business barriers" (LOOC 1994b: 1). The competition to host the Olympic Games and to be a sponsor is so great that if the IOC chose to make specific environmental demands, it is likely that these would be met to a large extent (LOOC 1994b: 9).

Therefore, as we speculated in Hypothesis V, we can limit ecological problems through reform which takes into account and corrects negative ecological consequences thereby incorporating a substantive ecological dimension into the process of rationalization. The Winter Olympic Games also have the capacity to reach a global audience which can be used, as PEFO and Norway used them, to sell the environmental message internationally.

Just as plausible, though, is the opposing conclusion, that the greening of the Lillehammer Winter Olympics was unsuccessful and although these games were not as

damaging to the environment as those in Albertville or Calgary, they have significantly altered the landscape, reducing agricultural, recreational and wilderness spaces and created negative development patterns for the region. Infrastructure development may have been partly positive, but those municipal ameliorations could have been made without the Olympics. The construction of roads to link up the Olympic sites, however, was a negative development since they contribute to urbanization, increased traffic and emission of CO₂ and NO_x gases. The development of tourism also increases pollution through increased travel and few concrete measures have been taken to develop eco-tourism in the region (Selstad 1993: 13).

From this perspective, modest improvement and symbolic change are not positive developments because what the ecological crisis requires is radical change, not reform. The IOC and the LOOC succeeded primarily in improving the green *image* of the Winter Olympic Games and the legitimacy of their organizations, especially through cooperation with the environmental group PEFO. Other environmental groups, such as the Norwegian organization BELLONA, contend that PEFO was coopted and that this alliance is undesirable because the Olympic Games are essentially in conflict with the environment and by extension so is the IOC. The Norwegian state was also very interested in creating a symbolic image to live up to their green reputation and to market new environmental technology. For the IOC and individual states to seek ways to make the games truly environmentally sound, they would have to bring their growth-related impulses under control and radically limit both the magnitude of the games and their commercialization. But this is unlikely to occur through the present environmental reform of the Winter

Olympics under the premise of sustainable development (ie: through ecological rationalization). In their present format, the Winter Olympics continue to degrade the natural environment whereby new facilities and infrastructure continue to be imposed on rural undeveloped areas.

Therefore, we conclude that decisions made by centralized (hierarchical) bodies like the IOC, International Federations, Olympic Organizing Committees, etc. in accordance with instrumentally rational criteria lead to Winter Olympic Games that are harmful to the environment. We have already gone very far in changing the natural foundation of winter sports into totally artificial events. We are also remaking mountain slopes into more difficult and challenging race courses, as though nature were not challenging enough for human skill. Yet the increasing number of injuries and deaths among downhill racers (a woman downhill skier crashed and died in a world cup event just prior to the 1994 Winter Olympics), suggests that the level of risk has reached irrational proportions. Therefore, as Hypothesis VI suggests, the ecological problems resulting from the Winter Olympic Games might better be solved by radically simplifying the games, eliminating these centralized institutions (or the need for them) and replacing them with more participatory forms of organization. This could be accomplished by reusing a few established sites with existing facilities or by decentralizing the games, splitting them up into single event championships. Or the games could be replaced by small-scale regional events run by the local communities themselves, and consisting of sports that are not in conflict with the environment.

Lillehammer's Green Games did not prove Hypothesis V right and VI wrong or vice versa, but they did suggest the likelihood that ecological change of the Winter Olympics will follow the dominant trend in society at large, namely environmental reform premised on sustainable development. Whether Hypothesis V or Hypothesis VI is true in an objective sense, we do not know, but we can conclude that the international community has chosen to act as if Hypothesis V is true and Hypothesis VI is false. The Olympic Review (No.316, 1994: 93) declared that "As Lillehammer offered the first White-Green Games, concern for the environment remains a priority for the organizers of the next Games." We will have to wait for the 1998 Winter Olympics in Nagano, Japan for further evidence of either the success or failure of the addition of this new ecological dimension to the rationalization of the Winter Olympic Games.

CHAPTER VI

CONCLUSION

It is clear that the Olympics demonstrate "the existence of another of those fundamental elements of irrationality, a conflict between formal and substantive rationality of the sort which sociology so often encounters" (Weber 1978: 225). The objective of this study has been to show that the Weberian theory of rationalization helps us to comprehend recent transformations of the Winter Olympic Games, how they have come to have a negative impact on the environment and how ecological problems are being dealt with within the Olympic Movement. This investigation of the Winter Olympic Games, their impact on the environment, and the conflict between formal and substantive rationality inherent in this relationship, has contributed to the understanding of how the ongoing process of rationalization and its intensification works.

Examined together, the three Olympic Games studied here support Hypotheses I to IV (See page 28), demonstrating a clear progression from formal rationalization of the games, to their attempt to reshape nature, to their ecologically irrational consequences, and finally to efforts at ecological rationalization. The 1988 Calgary Winter Games already provided evidence that confirmed Hypothesis I. The 1988 games marked the point where the IOC became a multinational enterprise and where the Olympic Games became a global marketing tool, dramatically increasing television and sponsorship revenues for the Olympic movement. Calgary represented a quantum leap in the formal rationalization of the games from previous years and a new era for the Winter Olympics.

"Calgary 1988 marque sans conteste une étape nouvelle (pour les jeux d'hiver). Le développement économique prend le pas sur la promotion touristique....Ce sont les premiers jeux d'hiver bénéficiaires depuis plusieurs olympiades. Un nombre record de pays, d'athlètes y participent....la plupart des installations doivent être construites de toutes pièces...Elles seront remboursées à l'aide d'un étonnant contrat de télévision (Chappelet 1991: 129-30).

The formal rationalization of the games continued to augment at a less dramatic rate after the Calgary games, as evidenced by the Albertville and Lillehammer Olympics, which also confirmed Hypothesis I. Both games demonstrated that the Olympic bureaucracy continued to grow with the addition of new sports, new National Olympic Committees, new specialized marketing staff and new formal organizations to take responsibility for the environment. At Lillehammer, the marketing of products and technology through the games was intensified, not only in the domain of sports, but in environmental technology, construction technology (tunnelling at the Gjovik cavern arena and wood lamination at Hamar's Olympic hall) and other scientific research.

The formal rationalization of the Olympics has been a long and multifaceted process. We are particularly interested in learning whether increased rationalization coincided with increased attempts to master and reshape nature. Hypotheses II and III, which dealt with this issue, were supported clearly by all three of the Olympics studied, albeit to different degrees. This study has shown that in the case of the Olympic Games, formal rationalization accelerates the reshaping of nature and that this is accompanied by negative consequences. If one thing is clear from this study, it is that the Winter Olympics do have negative consequences for the environment.

Even though it was not the first time artificial winter venues were created, Calgary marked a new scale of artificialization of nature with its new ice oval, the reshaping of Mount Allan and the decision to rely entirely on artificial snow and ice. The comments of FIS president, Marc Hodler, exemplified the attitude that artificial conditions are superior to natural ones. "The best way to organize a Winter Olympics is without snow. It's easier to put snow on the ski slopes than it is to take it off highways, parking lots, roads and streets" (Leighton 1987: 38).

However, it was the Albertville games that illustrated the most intense effort to master and reshape nature and where the most dramatic negative consequences were manifest. Ironically, the Albertville games, which were supposed to incorporate ecological criteria into the planning process, produced more ecological injury than previous games that had no ecological dimension. While Calgary's games created two new ski resorts, Nakiska and the Canmore Nordic Centre, in undeveloped wilderness areas, the rest of the venues were in and around Calgary, avoiding urban development of areas yet untouched. The Albertville Olympics, on the other hand, produced heavy construction and urban development in a widespread rural area and thus resulted in much more serious injury to the local ecology. They also received the most public criticism of any Olympics for their impact on the environment.

Lillehammer's "green games" in 1994 also relied on artificially created winter sports venues in pristine natural environments, artificial snow and ice, remodelling of natural sites and infrastructure development and therefore also confirm Hypotheses II and III. But they did not do as much damage to the environment as Albertville because actions

were taken to avoid and mitigate ecological problems. It is not possible to conclude that these games were a total disaster for the local environment since they "contributed both positively and negatively to the urban and landscape development" (Selstad 1993: 18).

If development is deemed necessary, it remains to be assessed whether the type of economic development that the Olympics foster in tourism is less harmful to the environment than other economic development patterns, that is, whether it is more sustainable. The research of this thesis points to the need for additional studies to investigate the related issue of whether the conversion of rural and wilderness areas into recreational areas is a better way of protecting natural surroundings and ensuring the economic survival of communities than other, more industrial, forms of development.

Evidence pertaining to Hypothesis IV was lacking until 1992 at Albertville (after the exceptional intensification of formal rationalization at Calgary) where some substantive concerns for the environment were incorporated into the conception and planning of the Olympics. However, these concerns had a very limited impact. The decision to spread the Olympics over 13 communes to maximize economic and infrastructure development would have been deemed incompatible with ecological considerations had the latter played a more important role. In the end, environmental policies amounted to aesthetic modifications and rhetorical statements. The Albertville Games showed that at that stage of rationalization, goals of profitability, administrative and technical efficiency and successful reshaping of nature took priority over ecological values, which resulted in irrational consequences in an ecological sense of Olympic developments in the Savoie.

The Lillehammer Olympics more clearly substantiated Hypothesis IV. They marked the entry of a substantive ecological dimension into the Winter Olympic Games, and fulfilling this ecological dimension has become an explicit goal of the IOC. The Norwegian national and municipal governments, in cooperation with both the LOOC (essentially a follower) and Project Environmentally Friendly Olympics (PEFO) (playing the role of consultant and watchdog), subjected the Olympics to an intensified planning process incorporating new environmental personnel, guidelines, regulations, fines, procedures, and new environmental technology. The greening of the games at Lillehammer represented the intensification of rationality under a premise of sustainable development in order to counter environmental irrationalities.

Therefore this study, as a whole, has confirmed Hypotheses I to IV. It has documented that the three Olympics studied here constituted the beginning of a process whereby the harmful environmental consequences of rationalizing the Winter Olympic Games have led to the intensification of rationalization with a new ecological dimension within the Olympic movement itself. Ecological reform is taking place at the Olympic Games.

The Success of Greening the Games

Whether or not this transformation of the Winter Olympic Games will successfully solve the ecological problems resulting from them is the question that our speculative Hypotheses V and VI deal with. Hypothesis V posits that reforming the Winter Olympics

is the best method of solving their ecological problems. This is supported if we can conclude that the reformist strategy of greening the games was successful.

On the one hand, the Lillehammer Games, the only games so far that might deservedly be called green, were a qualified success. Incorporating ecological criteria into the rationalization of the games actually reduced their negative impact on the environment. Without the state's efforts to introduce recycling, improve waste disposal, improve public transportation, and limit deforestation, etc., the negative environmental impact would have been greater. If PEFO had not taken the initiative to confront the LOOC and pressure and lobby the LOOC and the state, many positive steps would not have been taken. For example, Akersvika, the bird sanctuary would not have been enlarged nor received any protection from the construction of Hamar's ice oval. Nor would IOC president, J.A. Samaranch, have invited PEFO to formulate an environmental action plan for the IOC and to address the 1994 IOC congress in Paris.

Additionally, the green reform of the games has helped to publicize an environmental message and increase environmental awareness internationally because of the popularity of the games and their capacity to reach a global audience. They have contributed to an ideology that the Winter Olympics can be green (Selstad 1993: 19) and that environmental reform is both necessary and possible.

None the less, it would be premature to decide categorically whether or not Hypothesis V is correct. It will take further evidence from future games to conclude if reform is the best way to prevent environmental damage. Will future games show that this new ecological dimension of rationalization has an increasingly positive influence on

the environment? Will the IOC and the Olympic movement become more environmentally responsible? Further studies along the lines of the present one will be necessary to monitor the evolution of the ecological reform of the Winter Olympic Games.

Hypothesis V and VI can not be verified in the same sense as Hypotheses I to IV because they refer to the future and are more closely related to substantive values. From a strict ecological value reference point, we could conclude, for example, that the green reform of the Winter Olympics did not do enough to minimize their negative environmental impact. Much of the environmental reform at Lillehammer was an exercise in public relations for the LOOC and the IOC. There is evidence that simple environmental imperatives like reducing, reusing and recycling are not priorities for the IOC. The Olympics could be held in cities that already have the necessary infrastructure and facilities, yet the IOC is not enthusiastic about Calgary's bid to hold the 2002 Olympics because their preference is still for a city that has never had the games before (Vancouver Sun 1992b: C6). The underlying economic goals of the Winter Olympics (to promote the ski industry and ski resorts, to boost local economies, to sell consumer products) are in conflict with environmental goals and were not altered by reform.

Decentralization and Elimination of Hierarchy: Utopian Olympics

From Bookchin's perspective, which resulted in Hypothesis VI, greening the games is doomed to fail just as "attempts to 'green' capitalism are doomed by the very nature of the system as a system of endless growth" (Bookchin 1989: 93). Growth is on a collision course with a world that has ecological limits. Reform is superficial and does not

alter the basic factors that have contributed to creating "unecological" Olympics.

Bookchin (1986: 84) suggests that

"if we ...examine the physical structure of this society, what must necessarily impress us is the incredible logistical problems it is obliged to solve -- problems of transportation, of density, of supply, of economic or political organization, of industrial location and so forth. The burden this type of urbanized and centralized society places on any continental area is enormous."

The Olympic games present similar logistical and organizational problems and similar requirements of resources and natural spaces. It may be that the Olympic Games are simply too big, involve too much infrastructure and will always have a greater overall negative impact than can be mitigated. If future games show that the IOC and the Olympic Winter Games continue to grow and cause ecological injury, then Hypothesis VI may yet be justified. If so, the Olympic Winter Games will have to be dismantled to avoid harm to the environment.

Yet it is difficult to entirely accept Hypothesis VI and Bookchin's theory of social ecology from which it is derived. We have already concluded in Chapter V that the international community has chosen to reject Hypothesis VI as false. Decentralizing the Olympics into small scale, communal forms of organization is a mammoth task that would involve decentralizing or eliminating not only the Olympic movement itself, but also all municipal and national governments (which play a major role in organizing the games), public sports organizations and capitalist enterprises linked with the Olympics. From the perspective of Bookchin's anarchist social ecology, creating ecological games requires creating an ecological society and this requires nothing short of decentralizing cities, the state, agriculture, industry, energy and the entire bureaucratic centralized economy.

It is highly improbable that this objective can be attained. Bookchin's social ecology lacks a theory of transition that explains how a complex, rationalized, highly urbanized society like ours, can be reoriented "so that the human population lives harmoniously ... in a world environment which is left natural" (Luke 1988: 91). Bookchin proposes that the transformation from a hierarchical centralized society to a non-hierarchical and decentralized one can be advanced through ethical arguments based on holistic ecological values, anarchist ideals and appeals to humanity's sense of justice for humans (Murphy 1994: 238).¹¹ However, this may be impossible in practice. If reforming bureaucratic and capitalist exploitation of humans and of nature by these ethical appeals is difficult, eliminating them seems next to impossible. Even Bookchin recognizes that the market nexus, science, bureaucracy and technological development have an autonomy that tends to override ethical arguments or intellectual persuasion (Bookchin 1980: 66).

It is also highly improbable that all social institutions can be decentralized and hierarchy be eliminated because, as Weber determined, routinization and rationalization are unavoidable. No matter what form of organization or authority is established, it will "succumb to routinization", the organization of authority becomes permanent, and "rules in some form always come to govern" (Weber 1967: 297). Not only is it improbable, it is not even desirable to completely eliminate hierarchy and decentralize all social institutions. Efficient organization in any social institution and the efficient functioning of

¹¹ He argues, for example, that "An anarchist society should be a decentralized society, not only to establish a lasting basis for the harmonization of man and nature, *but also to add new dimensions to the harmonization of man and man*" (Bookchin 1986: 101).

science and technology (and modern society in general) require an optimal degree of centralization and formal rationalization, which, as Weber has pointed out, will always entail hierarchical organization and domination in some form. Many smaller organizations have abandoned ideals of decentralizing and eliminating hierarchy because it is too debilitating and inefficient for their operation.¹² If the international community decides that it will continue to promote organized sport and hold international competitions, the Olympics in particular, then it is unlikely that the administration of these institutions can be totally decentralized. Furthermore, to limit harm to the environment produced by modern sport and the Olympic Games, we must also rely on the development of knowledge (especially that which clarifies how human technology interacts with the dynamic processes of nature) and on the development of new technology that can help solve environmental problems we have already created.

Bookchin's emphasis on ethics denies the important possibility that self-interest can motivate conformity to ecological values. Bookchin argues that if we rely on self-interest and economic motives to evoke the popular response that will deal with ecological and social problems, we will be relying on the same constellation of factors that contributed to their emergence (Bookchin 1987: 32). However, self-interest in human beings' long-term material interests can motivate us to protect the environment. The Olympic movement and organized sport are already making changes that will reduce their negative impact on the natural environment and natural resources, not necessarily for altruistic

¹² Two examples are Montreal's RCM and Greenpeace: see Ouellet, Eric "Greenpeace: les structures de gouverne d'une organisation de combat?" Communication présentée au Congrès annuel de la Société canadienne de sociologie et d'anthropologie, 1993; and Jean-François Laplante, "Décentralisation du Pouvoir: le Cas Du RCM", Thèse de maîtrise en sociologie, Université d'Ottawa, 1993.

reasons, but because it is in their own self-interest to protect their livelihood. If they take no action to protect the environment, they will lose legitimacy and public approval. They will lose tourists, customers, investors, profits and access to wilderness spaces as governments take action to limit the use of land for recreation. Reforming the Olympics through the intensification of rationality with an ecological dimension is not merely an attempt to legitimize continued exploitation of the natural environment by the Olympic movement and by related industry; it is instead a recognition of the contradictions inherent in that exploitation and the material interests of all sectors of society in decreasing such exploitation.

It is unrealistic to expect that the contradictions and antagonism between opposing interests and worldviews can be totally resolved and eliminated. Indeed, it is difficult to imagine that ethical arguments based on anarchist ecological values will persuade those with a vested interest in perpetuating the Olympic tradition (including the athletes, coaches, sports administrators, members of the International Federations and the IOC, sponsors, television networks, etc.) that they must eliminate the Olympics and sacrifice their careers, businesses and profits for the sake of the global environment. How can we expect consensus on one unconditional ethic or absolute value which will convince all social actors to strive to orient their action to its realization? Rather than taking an all-or-nothing approach as Bookchin does, it may be better to effect as much change as possible through various methods of reform. Reform, what Bookchin abhors as "calculations of 'lesser evils' or 'benefits versus risks' that betray us to the worst of evils

and the greatest of risks" (Bookchin 1987: 45), has brought about more substantial ecological improvements than anarchist ideals ever have.

We must conclude that Hypothesis VI, derived from Bookchin's social ecology is utopian and an implausible solution to the ecological problems resulting from the Winter Olympic Games.

Despite rejecting Hypothesis VI, we can still cull some elements of social ecology to improve upon other solutions and modify our hypotheses. For example, while total decentralization is unlikely to be achieved and even dangerous, some decentralization and a more participatory orientation can be beneficial. Bookchin theorizes that direct democracy, greater citizen participation in municipal government and decentralizing authority can increase environmental responsibility and decrease the likelihood that decisions harmful to the environment will be taken. It is not only the IOC and its oligarchy that is responsible for environmental degradation, but also the "vote hungry politicians like Jean Drapeau...with their grandiose schemes for hosting the games" (Dowbiggin 1992: G12). Therefore, change at the municipal level of government which fostered greater citizen participation, direct democracy and opportunities for communities to control the development of their cities, could create greater debate and more reflection on possible negative consequences. Two communities, Colorado, USA and Lausanne, Switzerland, were able to influence the decision-making process through referendums and plebiscites and succeeded in defeating, for ecological reasons, efforts to hold the Olympics in their cities. This suggests that where there is both greater ecological consciousness and greater direct democracy in a community, there will be a greater tendency to protect the

environment. Some decentralization of power by creating other centres of power (in community movements, social movements, new institutions) permits consciousness raising and limits apathy because individuals can have an impact on the state, industry and other centralized institutions. It thus has the potential to prevent decisions that have harmful consequences for the environment. It is not coincidental that the initiative for "green" games occurred in a Scandinavian country with a long tradition of social democracy.

Therefore attempting to moderately decentralize the organization of the Winter Olympic Games may be beneficial for both the community, in terms of political freedom, and for the environment where they take place. A certain amount of decentralization was at work at the Lillehammer games, considering the more consultative nature of the Norwegian municipal government and the fact that an independent environmental group participated in the decision-making process. Extrapolation would lead us to believe that more decentralization would be beneficial within the IOC and its sport technocracy as well. Studies have documented the lack of democracy and transparency in the IOC and the international sport federations, organizations which proclaim to be non-profit, yet which do not publish their accounts (see Simson & Jennings 1992; Chappelet 1991).

Paradoxically, anarchist social ecology's value lies not in its capacity to inspire revolution, which it proposes as a solution to injustice and environmental degradation, but in its capacity to inspire greater ecological and social reform. As an extreme alternative, it pushes reform efforts further than we might dare to push them otherwise.

Reform and Ecological Rationalization

Even though we can not objectively conclude whether or not Hypothesis V is correct we can conclude that ecological reform is the most likely solution to be chosen to deal with ecological problems. As we have seen, the Olympic movement and international community have chosen to act as if Hypothesis V is true. The present green reform of the Winter Olympic Games is a good illustration of how the process of rationalization works. It also supports the hypothesis that a substantive re-direction of the rationalization process has a strong potential to reduce unintended irrational consequences, especially ecological consequences, that threaten our freedom and our very survival.

A sense of responsibility for the environment is evident in the contemporary ecology movements throughout the globe and this has evidently affected the Winter Olympic Games. The international community has realized that the Winter Olympic Games are harming the environment. Only six years ago at the 1988 Calgary Olympics there was very little public awareness of any conflict between the Olympics and the environment, and little consideration was given to the environment by the organizers. By the 1992 Games in Albertville there was some awareness in the IOC that the Winter Olympics were developing a negative reputation, or there would never have been declarations about "returning to nature" and holding "model environmental Olympics". Yet this awareness only marginally influenced the way the games were implemented perhaps because environmental concerns were still perceived mainly as aesthetic concerns and

perhaps because there was no concerted effort on the part of the state or special interest groups to force the COJO and the IOC to respond.

More attention was paid at the 1994 Lillehammer Olympics to less visible, but more serious threats, such as the contribution to global pollution through the use of private transportation. The inclusion of ecological criteria and environmental risk/impact assessments in the rational planning of the Winter Olympic Games (among other environmental actions that were outlined in Chapter V), indicate a more prudent and reflective way of intervening in nature. The evolution of discourse on environmental protection within the Olympic movement confirms Dunlap and Catton's (1993) conclusion that environmental problems are perceived less and less as aesthetic concerns or irritants, and increasingly perceived as a direct threat to human well-being.

In Weber's theory domination by bureaucratic and capitalist institutions can not be eliminated, but can be constrained by interest groups and social movements motivated by new ultimate value commitments. Struggle between a plurality of centres of power and emerging ultimate value commitments can limit domination and can promote institutional and cultural change. The greening of the Lillehammer games was the result of just such a struggle. Initiation for environmental action at the 1994 Olympics did not come from the IOC or LOOC. Rather the Norwegian state imposed on the LOOC its intentions to publicize its green policies through the games. And the local environmental coalition, Project Environment Friendly Olympics imposed its ideas on the government, the LOOC and the IOC with their lobbying efforts. The IOC saw the value of cooperating to some degree to improve public relations. This led to a more cooperative relationship and

compromise from all parties with the result that some concrete environmental measures were taken. Even though radical ecological goals did not predominate (since this is still perceived as opposing the economic interests of the sponsors, the technical requirements of the Federations and the power of the IOC), the inclusion of environmental considerations had an important impact on values and are likely to have a significant effect on future Olympic Games. They will not only affect public attitudes, they may also bring about institutional change. Recommendations for institutional change have already emerged from PEFO's environmental action plan requested by the IOC.¹³ The IOC has already set up a sub-commission on sports and the environment and it is quite likely that many of these recommendations will be implemented.

Traditionally we have viewed nature as plastic and alterable, as demonstrated by the attempts to construct bigger, better and technologically superior winter Olympics. The Olympic credo, "faster, higher, stronger", has encouraged an instrumentally rational approach to sport that takes into account neither the physical limits of the human body, nor the ecological limits of human intervention in nature. The international community and the Olympic movement are beginning to understand these natural limits and are modifying the organization of the Winter Olympic Games in order to conform to these limits.

A broader understanding, which takes into account the indirect effects of the Winter Olympic Games on the environment, is also necessary. For instance, the Olympic

¹³ They include: the requirement that environmental impact assessments be done for all future Olympic host cities using the 1994 games as case study; the creation of an environmental strategy for the IOC; the establishment of environmental criteria for planning, location, construction and operation of sport venues; and the establishment by the IOC of an integrated yet independent environmental institution to handle issues relating to impact analyses, environmental criteria selection and developments for the IOC (Myrholt 1992: 11-12).

Games serve an important role in the sports and mass entertainment industry by motivating the continual production and consumption of new and improved sports equipment, technology and recreational facilities. Sports equipment is big business, valued at \$10.5 billion in the U.S.A. (Snyder & Spreitzer 1989: 272), and zealously pursued through the advertising medium of the Olympics. A question that is beyond the scope of this study, but that should be pursued in further research, is how the Olympics promote environmental damage, not just in the location where the Games take place, but indirectly through this upward technical spiral and the production of sports equipment and installation of sports facilities in other locations. A related hypothesis that merits further study is that Olympic sport may diminish recreational freedom and deplete natural resources by encouraging the technologization of sport. Specialized equipment and revolutionary techniques that actually create entirely new sports (such as skate skiing, speed skiing and acrobatic skiing, three new Olympic sports), increase consumerism and increase dependence on artificially created and maintained ski tracks, ski runs and other artificial installations. Olympic sports do not just reflect participation in particular sports, they create it.

Nevertheless, consistent with the intentions of the Nagano Winter Games Organizing Committee for 1998 to "reconcile respect for the environment with the interests of sports" (Olympic Review 1994, 316: 93) the sports goods manufacturer, Masato Mizumo, has launched a campaign ("Eco-Wave") to make the world's sports industries incorporate plans for environmental protection into their businesses (Olympic Review 1994, 316: 97). What will be the consequences of intensifying rationalization in

an ecological direction in the sports industry? Will science and technology continue to promote environmental degradation or will the aggravation of environmental problems lead humans to use science and technology in a way that would allow us to live in a more symbiotic relationship with nature (Murphy 1994: 247-8)?

This study has shown that the intensification of rationalization guided by the goal of adapting to nature, which has its own spontaneous processes and limits, has begun to replace the goal of mastering plastic nature. This is increasingly directing the relationship between the Winter Olympic Games and the environment. The greening of the Olympics, although not an unqualified success by any means, is an illustration of what Weber predicted as the most realistic way of steering the rationalization process. This new phenomena provides additional evidence that industrial societies are moving from a technological to an ecological social paradigm as Olsen et al. (1992) found. The green transformations of the Winter Olympics provide some evidence that attitudinal changes have indeed affected behaviour and institutions in a way that may lead to a symbiotic relationship between humans and their environment. However, there is no guarantee that turning the Olympic Games into a "world showcase for protecting and conserving the environment" (Samaranch quoted in Olympic Review 1994, 316: 99) will achieve what it is intended to achieve, that is, a more harmonious relationship between the Winter Olympics (and hopefully sport in general) and the environment because the Olympics are still predominantly seen as an instrument to economic and political, not ecological, ends.

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