CHAPTER ONE

PROBLEMS, AIMS AND STRATEGIES OF THE WORLD SOUNDSCAPE PROJECT

This chapter will provide a general survey of the WSP's activities on two levels: the problems the WSP saw in the related fields of music and acoustic environment, and the aims and strategies it proposed and practiced to solve these problems.

IDENTIFICATION OF PROBLEMS

In the industrialized modern societies, there are several problems and needs which have a significant influence on the field of music. The establishment of the WSP was based on the recognition of these problems, the desire to increase public awareness of them and to provide possible solutions to them. The primary problems seen by the WSP can be divided into three themes: noise pollution, listening attitudes, and noisy music.

1. Noise Pollution. The fundamental reason for the establishment of the WSP was the problem of noise pollution. Concern about noise pollution starts with the realization that, compared to other times in history, the acoustic environment of modern society is quite exceptional. Schafer says:

> Modern man is beginning to inhabit a world with an acoustic environment radically different from any he has hitherto known. These new sounds, which differ in quality and intensity from those of the past, have alerted many researchers to the dangers of an indiscriminate and imperialistic spread of more and larger sounds into every corner of man's life.[1]

Schafer condemns noise pollution in modern cities, regarding it as an increasing danger:

> Noise pollution is now a world problem. It would seem that the world soundscape has reached an apex of vulgarity in our time, and many experts have predicted universal deafness as the ultimate consequence unless the problem can be brought quickly under control.[2]

Thus, drawing attention to and combating the problem of noise pollution appears to have been one of the motives for Schafer to form the WSP.

2. Listening Attitudes. What causes this dangerous acoustic situation in the modern city? Schafer seeks the fundamental cause in our listening attitude to sound. People are accustomed to listening carefully in both aesthetic and critical ways to a specific kind of sound, that is, the sound of "music".

[1] R. Murray Schafer, "Studies in the Acoustic Ecology and the World Soundscape", p.1. This is a grant proposal prepared by Murray Schafer in 1970 for UNESCO. The same statement quoted here appears in The Tuning of the World in 1977 by the same author (p.3). This suggests that this problem was predominant during the life of the WSP. This continuity enables the present writer to use evidence from The Tuning of the World in this section.

[2] R. Murray Schafer, The Tuning of the World, (New York: Alfred A. Knopf, 1977),p.3.

Such listening occurs in certain restricted spaces such as the inside of concert halls and listening rooms. Generally, people are not accustomed to paying any special attention to the sound outside of those spaces, and usually try to ignore any kind of unpleasant sound, that is, "noise". Schafer remarks that "Noise pollution results when man does not listen carefully. Noises are the sounds we have learned to ignore".[3]

Then, what makes man learn to ignore the sounds which become noise? According to Schafer, there are two major factors: the industrialization of society, and the tradition of concert hall music. Industrialization brought into society many sources of sounds which are totally different in quality and intensity from those man used to hear before the Industrial Revolution. Society as a whole has become noisier, and afflicted by new acoustic problems.

At about the same time as the Industrial Revolution, in Western European society, concert hall music began. Schafer focuses on the point that these two events took place at about the same time in history, and at the same place in the world. Schafer suggests that there is a significant relation between these two historical events:

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[3] Ibid., p.4.

> Music moves into concert halls when it can no longer be effectively heard out of doors. There, behind padded walls, concentrated listening becomes possible. That is to say, the string quartet and urban pandemonium are historically contemporaneous.[4]

Since music moved into the concert hall, the musician has been concerned simply about the sound inside of the concert hall or its equivalent, and has become indifferent to the sound outside. In this respect, Schafer blames musicians for having contributed to "noise pollution" in the industrialized societies:

> A musician used to be one who listened with seismographic delicacy in the music room, but who put on ear flaps when he left. If there is a noise pollution problem in the world today it is certainly partly and maybe largely owing to the fact that music educators have failed to give the public a total schooling in soundscape awareness, which has, since 1913, ceased to be divisible into musical and nonmusical kingdoms.[5]

In this statement, Schafer is referring to Luigi Russolo's 1913 manifesto, L'Arte dei Rumori [The Art of Noises] where Russolo advocates the introduction of new technological city sounds into the field of music. Further, Russolo encouraged people to extend their aesthetic appreciation to the sounds in their daily acoustic environments.

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[4] Ibid., p. 103.

[5] Ibid., p.111.

Schafer realizes that, in general, musicians are indifferent to environmental sounds, which leads to a broader problem of listening attitude in this society. Therefore, the WSP seems to have been established with the aim of changing people's listening attitudes, encouraging them to listen to their total acoustic environment with critical ears, and involving musicians more actively in the field of acoustic environment.

Generally, noise pollution is approached simply using the first factor, that is, "the industrialization of society". It is significant that Schafer not only adds the second factor, that is, "the tradition of concert hall music", but also focuses more on the analysis of the problem of noise pollution from a musical perspective.

3. Noisy Music. The third problem involves the direct effect of noise pollution on music. From his musician's point of view, Schafer is seriously concerned about noise pollution, because, to him, a "polluted acoustic environment" means that the field of music itself is polluted. If the noise pollution is not brought quickly under control, Schafer predicts:

> No more would we be able to hear the delicate sounds of birds, of water, the breathing of nature or sounds of our own voices. And music would cease to exist on this planet.[6]

[6] R. Murray Schafer, The Book of Noise (1970), p. 12.

In fact, Schafer's concern about the influence of noise pollution on music relates not only to a hypothetical future. According to him, the noises of modern cities are now already damaging the physical function of our ears, and dulling their aesthetic sensitivity, and thereby are undermining the very bases of music itself. As an example, he points out that some recent genres of music have been especially influenced by this polluted acoustic environment of urban life; they have to increase their sound levels up to the pain threshold in order to provide enough acoustic stimulation:

> ...popular music, which was frequently performed outdoors, ultimately turned the amplifier into a lethal weapon by pushing sound production up to the threshold of pain. While during the 1960's workmen's compensation boards were introducing limits for noisy industrial environments (85 to 90 decibels is recommended for continuous noise), rock bands were producing peaks of 120 decibels, with the result that when audiologists finally settled down to the task of assessing the damage, they discovered the obvious: rock fans, mostly teenagers, were suffering from "boilermaker's disease".[7]

As we can clearly see in the above, Schafer's concern about noise pollution from his musician's point of view focuses not only on the influence of our polluted acoustic environment on the sound levels of rock music, but also on the opposite influence, that of rock music on the modern acoustic environment.

[7] R. Murray Schafer, The Tuning of the World, (New York: Alfred A. Knopf, 1977), pp. 114-115.

That is, as a result of having enormously increased its volume level, rock music now contributes to noise pollution, not only by bothering unwilling listeners but also by damaging the hearing abilities of listeners, and of course, rock musicians themselves. It might be called music pollution.

Rock music can be seen as an example of a musical victim of noise pollution. It can be argued that the extreme intensity of some rock music, or even other types of music, is in part a reflection of the noisy acoustic environment of modern cities. This discussion leads the present writer to suggest that one of the motives for the establishment of the WSP might have been to protect music from the influence of noise pollution in the modern society, and to stop any kind of music from being a factor contributing to noise pollution.

In this section, three major problems leading to the establishment of the WSP have been discussed. Among these problems, the first, noise pollution, can be seen as the most fundamental reason for the establishment of the WSP. In light of the peculiarity of the modern acoustic environment and the danger of noise pollution, Schafer also realized the problematical relationship that exists between music and the acoustic environment of modern cities, which leads to the latter two problems. Schafer came to believe that musicians were partly to blame for

the whole problem of noise pollution, contrary to a preconception that music is a wholesome influence in any kind of acoustic environment.

The present writer sees these three problems as the most significant in that they motivated the establishment and subsequent activities of the WSP. This thesis will examine the WSP's activities from the perspective of the kinds of strategies the Project planned and carried out in its works, in order to solve these problems.

AIMS AND STRATEGIES

Recognizing that the arena in which contemporary music must exist is the polluted acoustic environment of modern society, Schafer felt the strong necessity for musicians to participate in improving the situation.

The WSP formulated its specific aims in a grant proposal to UNESCO in 1970:

(1) To undertake an intensive interdiciplinary [sic] study of contrasting acoustic environments and their effects on man.

(2) To suggest ways of changing and improving acoustic environments.

(3) To educate students and field workers in acoustic ecology.

(4) To educate the general public in acoustic ecology.

(5) To prepare reports as guides to future studies.[8]

[8] R. Murray Schafer, "Studies in the Acoustic Ecology and The World Soundscape" 1970, title page.

In the next year, another proposal to the Donner Foundation reiterated these aims. Further, these aims were supplemented by a section entitled "Principle [sic] Themes of the Project" which are:

(1) Documentary study of acoustic environments showing the type, number and density of various sounds in various environments;

(2) Explorations into the ways sounds may affect man's behaviour;

(3) Study of the mythic and symbolic qualities of sounds;

(4) Study of sounds which function as community signals;

(5) Collection of an archive of disappearing sounds;

(6) Periodical circulation of an audio-visual information sheet seeking cross-cultural references from abroad;

(7) Preparation of an extensive series of radio programs dealing with the acoustic environment;

(8) Resource services to citizens' organizations, governments and educational institutions on noise pollution and acoustic design.[9]

These specific aims and themes provide the basis for the Project's activities.

In order to solve the problems previously discussed, and to achieve the above aims, the WSP devised and practiced several different strategies. The following four strategies, conceptual, educational, political, and social, can be abstracted from the Project.

[9] R. Murray Schafer, "Proposal to Donner Foundation: Studies in the World Soundscape" 1971, pp. 2-3.

1. Conceptual Strategy. According to Schafer, the fundamental cause of noise pollution is our listening attitude, which pays special attention to a specific kind of sound in a concert hall and ignores most sound outside of a concert hall, that is, environmental sounds in general. Therefore, the first and the most basic strategy should be making people attend to those sounds which they used to ignore. In order to induce people to listen to environmental sounds without preconceptions, Schafer proposed the concept of "soundscape".

What is "soundscape"? Citing Cage's definition of music, "Music is sounds, sounds around us whether we're in or out of concert halls", Schafer says that:

> I am going to treat the world as a macrocosmic musical composition... Today all sounds belong to a continuous field of possibilities lying within the comprehensive dominion of music. Behold the new orchestra: the sonic universe![10]

This "world as a macrocosmic musical composition", or "the new orchestra: the sonic universe" is exactly what Schafer means by "soundscape". The word "soundscape" was coined by Schafer from its visual equivalent, "landscape". As early as

[10] R. Murray Schafer, The Tuning of the World, (New York: Alfred A. Knopf, 1977), p. 5.

in his book, Ear Cleaning (1967), we can recognize the gestation of the concept. By 1969, the concept of "soundscape" became clear enough to be the basic idea of his book, The New Soundscape, (1969). It eventually became the fundamental idea in all the activities of the World Soundscape Project.

In The Book of Noise (1970) Schafer emphasizes this strategy. He writes:

> The purpose of this booklet is to point out some of the dangers of Noise Pollution and to suggest ways we can help to reduce it.
> The first way is to cultivate the habit of listening. Listen carefully...to the sound of the environment around you... Listen each day and ask yourself questions about the sound heard. Ears are precious instruments. They should be used critically. Man is the predominant maker of sounds in the modern world, the chief composer of the world soundscape and symphony. Will his composition be distinguished for its elegance and beauty or for its lousy orchestration?[11]

When people regard the whole acoustic environment as a huge orchestra, a macrocosmic musical composition, they start listening to it more carefully, eventually they may listen both critically and aesthetically, as they used to listen to music in a concert hall. Then, they realize which sound is beautiful or pleasant and which sound is ugly and unpleasant.

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[11] R. Murray Schafer, The Book of Noise (1970), p. 3.

That is, they start distinguishing the sounds to be preserved from those to be restricted or eliminated.

This independent listening activity by individual persons is the starting point, and the basis from which to solve the problems of the acoustic environment and music in the modern city. We should keep in mind that this first strategy, that is, listening activity by individual members of society, which can be sometimes quite subjective, is considered by the WSP as the fundamental principle.

2. Educational Strategy. After proposing the concept of "soundscape", and inducing people to listen to it carefully, the Project had to provide them with specific methods for listening, and with basic knowledge about environmental sound, which is the educational strategy. That is, the cultivation of listening activities in terms of environmental sound in general consists of two points. First, people should be provided with certain methods or skills so that they can listen to environmental sounds from their own aesthetic perspectives. Second, people should be made aware of the possible health hazards caused by sound, in order to develop the ability to listen critically as well as aesthetically.

When people start listening to environmental sound carefully, they begin to discriminate between beautiful and ugly,

exciting and boring, favourite or annoying sounds. Although there might be some agreement, ultimately these judgements will depend on individual taste and sensibility. Moreover, a listener's tastes will differ according to the relationship between himself and the environment, for instance, whether he is a traveller or dweller in that environment. Therefore, instead of being told which sound is beautiful or ugly, people should be simply encouraged to listen to environmental sounds from their own aesthetic perspectives. In order to facilitate this, the Project developed a number of methods and exercises. Some of the most basic ones are called collectively "ear cleaning", which is explained by Schafer as "A systematic program for training the ears to listen more discriminatingly to sounds, particularly those of the environment".[12]

One of the principles of ear cleaning is serious consideration of silence. Schafer writes:

> Many exercises can be devised to help cleanse the ears, but the most important at first are those which teach the listener to respect silence. This is especially important in a busy, nervous society.[13]

Several useful examples of these exercises are introduced by Schafer. The first is declaring a "moratorium on speech

[12] R. Murray Schafer, The Tuning of the World, (New York: Alfred A. Knopf, 1977), p. 272.

[13] Ibid., p.208.

for a full day" or to "stop making sounds for a while and eavesdrop on those made by others". Another involves relaxation and concentration to facilitate acute hearing. A third exercise is to "seek out one sound with particular characteristics" such as "a dull thud followed by a high twitter". Schafer says:

> Such sounds will not be found in every environment, of course, but the listener will be forced to inspect every sound carefully in the search.[14]

There is another type of method which helps people to listen to environmental sound. It uses the activity of "walking". There are two different kinds of walking; the "listening walk" and the "soundwalk".

The former is "simply a walk with a concentration on listening". There are two key considerations when we participate in a listening walk. The first is to keep our ears alert; the second is to have privacy which allows one to think about the sounds in the environment being explored. A leisurely pace is recommended. If this is done by more than a single person, sounds heard and missed can be discussed at the finish.

The latter is "an exploration of the soundscape of a

[14] Ibid., p.208.

given area using a score as a guide". The score is in the form of a map containing instructions about interesting sounds that can be heard along the route. Participants of soundwalks should listen not only to the sounds existing in the environment, but also to the sounds which they are making. For example, Schafer suggests listening to the sounds made by walking on different surfaces such as wood, gravel and asphalt; here, a soundwalker becomes both audience and composer-performer.

As the second point of the educational strategy, the Project recognized that in order to listen critically and to protect one's health by understanding which sounds are harmful, people need basic knowledge about the influence of sound on their bodies. Schafer and his Project always strove to provide people with this essential knowledge. Schafer explains the hazards of noise:

> Medical science has determined that sounds over 85 decibels, heard continuously over long periods of time, pose a serious threat to hearing... Prolonged exposure to sound beyond this level may result, first, in temporary threshold shift (or TTS as it is sometimes called). TTS is an elevation of the threshold of hearing so that after being subjected to a very noisy experience, all sounds afterward seem fainter than usual. Normal hearing returns after a few hours or days. With further exposure, permanent cochlear damage may take place, resulting in permanent threshold shift (PTS). When this loss occurs in the inner ear, it is incurable.[15]

[15] Ibid., p.183

In order to protect ears from these impairments, people must know the minimum sound levels and duration per day which leads to hearing loss. Schafer introduces "Permissible Noise Exposure as Established by the Walsh-Healey Act (1969)" as an example of a legal compromise made as result of pressure from the American Otological Society on American inductry. The criteria in this Act appear below:

DURATION PER DAY (HOURS)	SOUND LEVEL (dbA)
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

[16]

Acoustic problems are not limited to industrial situations. There are many aural health problems found in the average home. Schafer points out a number of these hazards. For example, he states that "persons operating power lawnmowers averaging 97 dbA suffer a temporary hearing loss after 45 minutes of exposure",[17] Schafer also discusses another example from the WSP's research, involving the sounds heard over a telephone:

[16] Ibid., p.184

[17] Ibid.

> In one of our research projects we have registered a busy signal at over 120 dbA and conversation at over 100 dbA at the point where the ear would normally make contact with the receiver. This is loud enough to be an aural health hazard.[18]

These two examples show the potential danger of sounds we deal with everyday. We might consider the sound of the lawnmower to be unduly loud; however, we usually have a pre-conceived idea that sounds from a telephone are harmless because they are soft. In this case, surprisingly, it is the telephone which is potentially the more dangerous.

The methods and exercises developed under the idea of "ear cleaning" assist people to cultivate their listening abilities allowing them to experience environmental sounds they would rarely otherwise carefully listen to. Together with the knowledge about the hazards of noise, we should try to develop our listening habits concerning environmental sounds. "Ear cleaning" requires that we should have no preconceived ideas about different kinds of sounds, but at the same time listen to them in a critical way.

3. Political Strategy. The first two strategies focus on the awareness and activities of individual members of a society. Emphasis is placed on the introduction of a new concept and

[18] Ibid., p.242.

information which will help people realize the true dimensions of their acoustic environment. Compared to the earlier ones, this third strategy is quite different in that it concerns the powers of governments, which are both collective and backed up by sanctions.

In the context of this discussion, the word "political" is meant to be understood in a broad sense, and not related to particular political parties or sects. "Political" here is understood as relating to governmental bodies and their powers, that is, legislative, administrative, and judicial. "Political strategy" is the strategy involving governmental institutions.

In modern nations and societies, only political bodies have direct power to regulate and control noises. The WSP did not overlook this fact. That is, the Project realized that in order to solve the problem of noise pollution it had to involve political bodies in the strategy as well as to cultivate the awareness of individuals.

How, then, can the WSP influence those political bodies? There are two basic approaches: the indirect approach through the public, and the direct approach. The indirect approach is to raise the political consciousness of individuals so that they start influencing their government through citizens'

movements or individuals' efforts. The direct approach is for the Project directly to influence those political bodies without the involvement of the public. Both approaches can be taken by providing the appropriate information about noise pollution and its regulation.

Some information is aimed primarily at the public, and some of the information is aimed primarily at the government. But all the information may be of interest to both private citizens and legislators.

In order to raise the political consciousness of the public, what is necessary first is to make people realize the importance of the political aspect of the problem of noise pollution, and ask them if they are aware of the noise abatement legislation in their own communities. Usually, most of the members of a community are not aware of the noise by-laws of their communities.

In order to help people to learn about their communities' noise by-laws, the Project provides general information about how and what kind of noise legislation is enforced in a given community. According to the Project, there are four basic cases:

1) national legislation which may or may not be supplemented or embellished by municipalities;

2) provincial or state legislation which may be adopted or embellished by municipalities;
3) municipal by-laws alone;
4) other arrangements among the national, provincial or state, and municipal levels.[19]

Together with this basic knowledge, a general introduction to noise abatement legislation itself is helpful to increase the public's political awareness of this issue. This general introduction often takes the form of indicating the failures of the present by-laws. For example, according to the Project, most Canadian by-laws concerning noise abatement ignore completely the noises made by industry, construction, demolition, expressways and aircraft; they are addressed directly and exclusively to the private individual.[20]

More practical information about how the public can complain about noise is also necessary. That is, the Project provides the information about what kinds of noise should be complained about to which sections of government. For example, the Project encourages people to call their city hall or write to the Mayor or Council to complain about traffic and construction noise, and to call the Air Services Division of

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[19] Ibid., p.191.

[20] R. Murray Schafer, The Book of Noise (1970), p. 28.

the Department of Transport to register complaints about aircraft noise.[21] Also, the Project provides the information about noise abatement societies for occasions when individuals need current literature on the topic, or need advice with regard to techniques for confronting noise problems.

On the other hand, comparative research into the by-laws of different municipalities or nations is reported by the Project. For example, the Project reports the result of comparative research into different national noise legislations in a section of The Tuning of the World, "Civic Noise Abatement Legislation Around the World". A Survey of Community Noise By-Laws in Canada (1972) reports the first comprehensive survey of noise by-laws from Canadian communities with a population in excess of 25,000. These reports help both citizens and legislators to understand their own communities' noise by-laws in comparison with other communities' in the nation and around the world. The historical research into a community's noise abatement legislation is also helpful to both the public and government to deepen their understanding of the issue.

The political strategy, then, may involve actual alteration of the soundscape, but only through governmental power after the Project influences the governmental bodies either

[21] Ibid., p. 29.

directly or indirectly. In this sense, it might be considered as similar to the case of the president of a company who, after learning through the educational strategy the true danger of noise to his workers' health, would try to improve the acoustic conditions of his factory.

What we can expect as a result of the political strategy is so-called "noise abatement". Noise abatement can be seen as having two aspects, legal and actual alteration of the soundscape. By "legal", we mean laws enacted by legislators, enforced by bureaucrats and law enforcement officers, and sanctioned and interpreted by the judicial branch. "Actual alteration" as a result of the political strategy usually means stopping or decreasing noises rather than creating better acoustic environments.

The Project thinks the problem of modern acoustic environment should be dealt with more "positively" and "creatively" than these approaches carried out by the political strategy. The Project does not think that noise abatement is a sufficient response in itself to the problem of modern acoustic environment.

4. Social Strategy. While the conceptual and educational strategies deal mainly with heightening public awareness and understanding of the problems of the acoustic environment, the political and social strategies involve attempts to actually

alter the soundscape. However, the political strategy can be distinguished from the social strategy in two respects. First, the actual alteration of the soundscape as a result of the political strategy can only be indirect, in that it happens only through the exercising of governmental powers; and second, most of what is done by government in this regard involves noise abatement, that is, stopping or decreasing noise in the soundscape.

In contrast, the social strategy involves actual alteration of the soundscape by musicians, architects, and acousticians, among others, and the form of this alteration is creative and positive, aiming at fundamental changes in the acoustic environment of modern society. Schafer writes:

> Noise pollution today is being resisted by noise abatement. This is a negative approach. We must seek a way to make environmental acoustics a "positive" study program. Which sounds do we want to preserve, encourage, multiply? When we do this, the boring or destructive sounds will be conspicuous enough and we will know why we must eliminate them. Only a total appreciation of the acoustic environment can give us the resources for improving the orchestration of the world soundscape.[22]

The Project is not satisfied with the approach of noise abatement. In addition to this negative approach, the Project

[22] R. Murray Schafer, The Tuning of the World, (New York: Alfred A. Knopf, 1977), p. 4.

proposes the establishment of another new approach, an inter-disciplinary field of art and science, which it calls "acoustic design". Schafer writes:

> The outright prohibition of sound being impossible, and all exercises in noise abatement being consequently futile, these negative activities must now be turned to positive advantage following the indications of the new art and science of acoustic design.[Italics mine].[23]

The proposal and practice of this new field of art and science, "acoustic design", is the strategy on which the Project places the most emphasis to cope with noise pollution. This strategy is "social", because it aims at establishing a new discipline and directs groups of concerned individuals toward more positive improvements of acoustic environment. Schafer defines "acoustic design" as follows:

> A new interdiscipline requiring the talents of scientists, social scientists and artists (particularly musicians), acoustic design attempts to discover principles by which the aesthetic quality of the acoustic environment or soundscape may be improved. In order to do this it is necessary to conceive of the sound-scape as a huge musical composition, cease-lessly evolving about us, and to ask how its orchestration and forms may be improved to bring about a richness and diversity of effects which, nevertheless, should never be destructive of human health or welfare. [Italics mine].[24]

[23] Ibid., p.238.
[24] Ibid., p.271.

Acoustic design has two basic, complementary aspects: theoretical and practical. For example, the following issues can be considered as some of the significant principles in the practical aspect of acoustic design:

1) the elimination or restriction of certain sounds (noise abatement);
2) the testing of new sounds before they are released indiscriminately into the environment;
3) the preservation of sounds;
4) the imaginative placements for sounds to create attractive and stimulating acoustic environments;
5) the repair of the soundscape.[25]

As can be seen above, the practical aspect of acoustic design deals with the actual alteration of soundscape by artists, acousticians, and architects among others. These individuals can be called "acoustic designers".

On the other hand, sometimes "acoustic design" is defined or explained in the following manner:

> It devolves on us now to invent a subject which we might call acoustic design, an interdiscipline in which musicians, acousticians, psychologists, sociologists and others would study the world soundscape together in order to make intelligent recommendations for its improvement. [Italics mine][26]

[25] Ibid. (points 1 to 4 inclusive), p. 240 (point 5).

[26] Ibid., p.4.

Here, it is clear that the theoretical, rather than the practical aspect of "acoustic design" is focussed on.

There appears to be an ambiguity in the Project's use of the term. While the theoretical field is in some instances given its own name, "acoustic ecology", the practical field of this social strategy is consistently referred to by the term "acoustic design". In other words, the term is used in two different senses, the whole field of acoustic design, or only its practical field by itself.

For the sake of clarity, we will make the following distinction: the theoretical aspect of acoustic design will be referred to as "acoustic ecology"; the practical aspect will be referred to as "acoustic design". This distinction is supported by the Project's glossary in its Handbook for Acoustic Ecology:

> The study of the systematic relationships between man and sonic environments is called SOUNDSCAPE ECOLOGY, whereas the creation, improvement or modelling of any such environment is a matter of SOUNDSCAPE DESIGN.[27]

Acoustic ecology itself is defined as follows:

[27] "Soundscape", in Handbook for Acoustic Ecology (A.R.C. Publications, 1978),p.126. In this publication, the Project uses the term "soundscape ecology" instead of "acoustic ecology" and "soundscape design" instead of "acoustic design".

> Ecology is the study of the relationship between living organisms and their environment. Acoustic ecology is, therefore, the study of sounds in relationship to life and society. This cannot be accomplished by remaining in the laboratory. It can only be accomplished by considering on location the effects of the acoustic environment on the creature living in it.[28]

Social strategy has another significant aspect which we should not overlook, that is, its involvement in educational activities. The present writer uses the term "social strategy" to refer to the whole field of acoustic design, which includes both practical and theoretical fields. In both theoretical and practical fields of acoustic design, the educational aspects are important. Moreover, the concept of acoustic design was originally derived from "industrial design", which in turn was invented by the Bauhaus, an educational institution. Schafer explains "acoustic design" in comparison with the "industrial design" in the visual field:

> The most important revolution in aesthetic education in the twentieth century was that accomplished by the Bauhaus...the Bauhaus invented the whole new subject of industrial design.

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[28] R. Murray Schafer, The Tuning of the World (New York: Alfred A. Knopf, 1977), p.205.

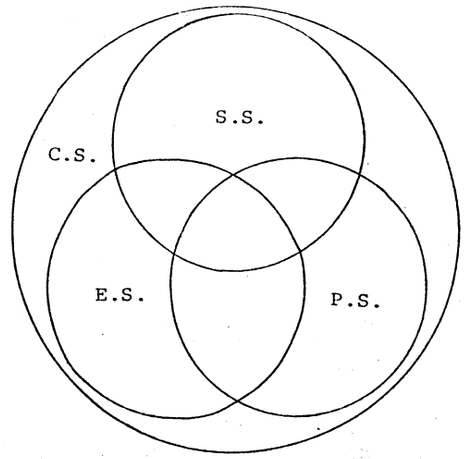
> An equivalent revolution is now called for among the various fields of sonic studies. This revolution will consist of a unification of those disciplines concerned with the science of sound and those concerned with the art of sound. The result will be the development of the interdisciplines acoustic ecology and acoustic design.[29]

These two concepts, acoustic design and acoustic ecology, formed the basis of the Project's activities. That is, the Project carried out various activities to preserve or design sounds, and completed various research studies of the soundscape.

The four strategies, conceptual, educational, political, and social, as discussed above, are the basic approaches developed and used by the Project to solve the problems of the modern acoustic environment. It is important to understand that these strategies complement each other; they do not exist independently. The relationships among these strategies can be shown by the following Venn diagram:

THE WORLD SOUNDSCAPE PROJECT

C.S.: Conceptual Strategy
P.S.: Political Strategy
S.S.: Social Strategy
E.S.: Educational Strategy



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[29] Ibid., p.205

In this diagram, the largest circle represents the territory of all the activities dealt with by the World Soundscape Project. All of these activities are based on the concept of "soundscape". Consequently, this circle should be equal to the totality of the conceptual strategy. This is supported by statements made by the Project itself such as "all aspects of soundscape studies have been the concern of the World Soundscape Project." [Italics mine.][30] It is clear that, among the four strategies, the conceptual is the most fundamental for the activities of the WSP.

While the conceptual strategy is based on the original concept of "soundscape" invented by the Project, the other strategies, educational, political, and social are based on more conventional concepts. That is, they are also important to many fields of study and activities other than the WSP's. Therefore, the three smaller circles represent the strategies, educational, political, and social, within the territory of the activities of the WSP, and the soundscape concept at large.

The strategies represented by the three small circles overlap. This shows that these strategies complement one another. However, there is no specific value applied to the proportions of the intersections. This Venn diagram simply intends to show the fact of dependencies and interconnections

[30] "Soundscape", in Handbook for Acoustic Ecology (A.R.C. Publications, 1978), p. 126.

among the strategies, since the type and magnitude of dependency will always vary according to the nature of the situation.

For example, we have already recognized the connection between the social and educational strategies through the discussion of how "acoustic design" was originally derived. On the Venn diagram, this connection is indicated by the intersection of the educational and social strategies. Similarly, social strategy involves noise abatement as one of its principles. To implement noise abatement or the restriction of sounds, the political strategy is often necessary. This is, in turn, shown by the intersection of the social and political strategies.

On the other hand, the political strategy is basically carried out by providing the appropriate information about noise pollution and noise legislation to the public and the government decision makers. The successful use of the political strategy is dependent upon how well the educational process, which is the educational strategy, has worked. This is represented by the intersection of the political and educational strategies. Conceivably, under some circumstances, all three strategies may work together, which is shown by the intersection at the centre of the diagram.

The area within the large circle, but not within any of the smaller circles, represents the pure conceptual strategy.