

REPORT FROM RESEARCH COMMITTEE

Proposal of fundamental items for social survey on noise problems

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1. INTRODUCTION

Social survey is a useful tool to examine the effect of noise on people in daily life situations. Social survey is an essential approach to estimate the permissible level of noise in living environment. However, it needs much effort and cost to conduct a social survey. Moreover, it is not easy to retest the survey as often done in laboratory experiments. If social surveys conducted in various places can be compared with each other, it gives useful information. It is also necessary to compare the results with those of other surveys in order to examine the validity of the survey. For this purpose it is required that common items are included in the social surveys to be compared.

The committee of the social survey on noise problems was organized by the Acoustical Society of Japan (ASJ) in order to examine the comparability of social surveys. The Committee proposed fundamental items for a questionnaire that can be used commonly in social surveys in Japanese in 1992 [1] after preliminary surveys conducted in seven research organizations which the committee members

belonged to. The English version of the questionnaire was published in 1996 [2].

2. RE-EXAMINATION OF THE ITEMS FOR THE QUESTIONNAIRE

The Committee was organized again in 2001 by ASJ and started to prepare the manual and the code of ethics and conduct for the social survey as well as to re-examine the fundamental items for the questionnaire in the first version published in 1992. The committee had several meetings and published the revised version of the common items for the questionnaire [3], the manual and the code of ethics and conduct in 2006. The revised questionnaire is translated into English and indicated in the appendix of this report.

3. REVISION OF THE ITEMS FOR THE QUESTIONNAIRE

There are minor changes in the items in Q2 (satisfaction with the living environment), Q3 (audible and annoying sounds) and Q4 (how to cope with the sound when annoyed). In Q2, the adverbs that indicate the degree of satisfaction were not indicated except for the end categories. The Committee decided it better not to indicate the adverbs after careful considerations. It was not easy to find appropriate adverbs since the adverbs should show the degree of equal interval and be easily understood, and they have an effect on the responses. The researchers who may want to indicate adverbs can refer ISO/TS15666 [4].

Many sound sources are listed in Q3. They were kept as the same as they were in the first version since the sound

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environment can be estimated from this question without physical measurement and can be used for soundscape studies [5]. If the list is considered to include so many sound sources, they can be reduced except for the key sound sources indicated in the manual [3].

Q5, Q6 and Q7 are new items added in the revised questionnaire. In Q5, the degree of annoyance of specific sounds such as road traffic noise, aircraft noise, train noise and construction noise is asked so that dose-response relationship can be examined. Five-step categories are used without adverbs except for end categories as in Q2. In Q6 annoyance of living environment as a whole is asked and in Q7 the effect of noise on neighbors is estimated.

4. MANUAL FOR CONDUCTING SOCIAL SURVEYS

The manual consists of nine items including the role and importance of preliminary surveys in order to prepare the questionnaire and how to carry out the social survey, etc. Especially the manual indicates how to use the fundamental items proposed by the Committee; what can be added, what can be changed and what cannot be excluded etc. The manual is published in the appendix of the report of the Committee [3].

5. PROTECTION OF PRIVACY

It is important to protect privacy of the respondents when conducting social surveys. The code of ethics and conduct was prepared by the Committee, in which the importance of the protection of human rights and the privacy of the respondents are clearly described.

The many key items about demographic properties of the respondents in the questionnaire in the first version were excluded except for the gender and age of the respondents.

The items about the living situations of the respondents were also excluded except for how long they have lived in the present house and the postal code of their addresses. If necessary, the investigators can record the location of the house, the housing condition, etc.

6. OTHER PROPOSALS OF SOCIAL SURVEYS

The method for establishing the dose-response relationship of various environmental noises has been examined in the committee (chaired by Kuwano) in the Institute of Noise Control Engineering of Japan (INCE/J) on the commission of the Ministry of the Environment of Japan. The questionnaires for social surveys of noise problems are proposed by the Committee including some items proposed by the Committee of ASJ. Preliminary surveys were repeated several times. The sound levels are either directly measured and/or estimated. Good dose-response relation-

ship could be found. A part of the results of the preliminary surveys was reported at Inter-noise 2004 [6].

Two international committees were organized on the same idea as ASJ, i.e. to examine the items that can be commonly used in social surveys. One is the Committee of ICBEN (International Commission on Biological Effect of Noise) chaired by Fields and de Jong. The Committee proposed two key questions for this purpose [7]. Yano *et al.* tried to examine the items in Japan [8–10].

In parallel to the committee of ICBEN, ISO/TC43/SC1/WG49 (convener: de Jong) started to examine the questionnaire and after some discussion it was decided to adopt the proposal of ICBEN. This was accepted as Technical Specification of ISO [4].

7. SUMMARY

The revised items for the questionnaire for social survey, the manual for the survey and the code of ethics and conduct have been made. The questionnaire was revised on the basis of the experiences of the committee members and the newly collected data. The revised version can be used to examine the dose-response relationship as well as the sound environment itself. A part of the revised version has been used in the questionnaire survey conducted by the Committee of INCE/J and the members of the Committee of ASJ [11,12]. The large-scale social survey could not be realized by the Committee because of the limit of the budget. The questionnaire proposed by the Committee will be used widely and the feedback of the results will be helpful to the design of better questionnaire in the future.

There are three kinds of proposals for the standardization of the questionnaire for social survey on noise problems; ASJ version, INCE/J version and ISO version. ASJ version is good for examining the situation of the sound environment. INCE/J version is characterized to be used to find the dose-response relationship. ISO version may be helpful to get information of other countries, especially European countries.

When the data are collected and they are open to public as a data base [13], they will become valuable resources for researchers of environmental problems.

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Appendix: Questionnaire on living environment

Through this survey, we would like to know about your experience and opinions concerning your living environment, especially the sound environment. Your answers will be treated statistically and the individual data will under no circumstances be published. Please answer each question frankly. Please do not skip any question. Results will be used only for scientific purposes.

Institution
Name of person responsible for the survey
Telephone number

Q1. How many years have you lived in the present house?

- less than one year
- less than 3 years
- less than 5 years

- less than 10 years
- more than 10 years

Q2. To what degree are you satisfied with your surroundings? Please circle the appropriate number for each item.

Note: 1 = satisfied
5 = dissatisfied

Convenience of shopping	1 2 3 4 5
Convenience of transportation	1 2 3 4 5
Amount of greenery	1 2 3 4 5
Clean air	1 2 3 4 5
Quietness	1 2 3 4 5
Public facilities (such as park and school)	1 2 3 4 5

Q3. Are the following sounds audible in your house? Are you annoyed by the sounds? Please mark in the appropriate column.

no	Sound source	inaudible	audible	
			not annoying	annoying
1	road traffic noise			
2	car horns			
3	sirens of ambulance or patrol car			
4	noise from motorcycle gang			
5	traffic signals			
6	train noise			
7	Shinkansen (bullet) train noise			
8	aircraft noise			
9	helicopter noise			
10	noise from factories			
11	construction noise			
12	sounds from school or kindergarten			
13	chimes			

Have my house sound-insulated. 1 2
 Move house. 1 2
 Other: () 1 2

Q5. Thinking about the last 12 months or so, when you are here at home, how much does each noise listed below bother, disturb, or annoy you? Please circle the appropriate number.

Note: 1 = not at all
 5 = very

Road traffic noise 1 2 3 4 5
 Aircraft and/or helicopter noise 1 2 3 4 5
 Train noise 1 2 3 4 5
 Noise from factories 1 2 3 4 5
 Construction noise 1 2 3 4 5
 Other: () 1 2 3 4 5

Q6. How much are the noises in your living environment as a whole annoying or unpleasant? Please circle the appropriate number.

Note: 1 = not annoying at all
 5 = very annoying

1 2 3 4 5

Q7. Do you think that your neighbors are annoyed or feel unpleasant by the noises in their living environment? Please circle the appropriate number.

1: yes 2: no

Q8. Please mark the appropriate boxes concerning yourself.

Gender:

female

male

Age:

under twenty

twenties

thirties

forties

fifties

sixties

above seventy

Q9. Please write the postal code of your address in the boxes.

□□□-□□□□

Thank you very much for your kind cooperation.