

CIB International Information System
for Ongoing Building Research - CIBORG

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ABSTRACT

International data recording of building research projects started already in the 60s with an exchange of ongoing research project cards of CIB member institutes. On the basis of the data received, an experimental analysis was carried out in 1967 by the Hungarian members in order to explore main trends and key-problems of international building research.

In the 70s BRS prepared KWIC indexes of the research projects recorded on the project cards.

The idea of creating a computer based information system of ongoing research arose in the Information Study Group of the CIB in 1982.

CIBORG was established as a Working Group of W57 with the aim of re-introducing the internal CIB information flow concerning ongoing research projects. After discussing different proposals a decision was taken by W57 and accepted by the Programme Committee and the Board of the CIB in 1984 according to which CIBORG will be operated by the Hungarian members ÉTI and ÉTK.

The programme started in 1985 and the CIBORG file of projects recorded this year contains 849 projects sent by 38 CIB members representing 21 countries. It was possible to make some preliminary statements about this international set of projects based on their content analysis.

Système d'information internationale CIB
sur les recherches en cours dans le bâtiment

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MOTS-CLÉS

Base de données, Coopération internationale, Recherches du bâtiment, Recherches en cours, Système d'information.

SOMMAIRE

La régistration internationale des données relatives aux projets de recherche du bâtiment a commencé aux années 60 par un échange de cartes de projet des recherches en cours entre les instituts membres du CIB. Sur la base des données ainsi reçues, des essais ont été faits pour analyser les trends et problèmes principaux des recherches internationales du bâtiment.

Pendant des années 70, BRS a préparé des indices KWIC sur la base des données qui se trouvent sur les cartes de projet.

L'idée de créer un système d'information à base d'ordinateur sur les recherches en cours a pris naissance au cours des travaux du Groupe d'Etude pour l'Information /ISG/ de CIB pendant 1982.

Le CIBORG a été créé comme un groupe de travail du W57 pour renouveler la circulation des informations sur les recherches en cours au sein du CIB. Après avoir discuté diverses propositions, une décision a été prise par le W57 et adoptée par le Comité de Programme et la Présidence en 1984, suivant laquelle le CIBORG serait géré par les membres hongrois du CIB, ÉTI et ÉTK.

Le programme était mis en marche pendant 1985, et le dossier CIBORG des projets enregistrés pendant l'année contient déjà 849 projets soumis par 38 membres du CIB représentant 21 pays. Il était possible de faire quelques constatations préliminaires concernant à cette collection des projets internationaux, et basées sur l'analyse de leurs contenus.

1. ANTECEDENTS

International data recording of building research projects started already in the 60s with an exchange of ongoing research project cards of CIB member institutes. On the basis of the data received an experimental analysis was carried out in 1967 in order to explore main trends and key-problems of international building research. A study publishing the outcome of this analysis¹ raised a heated debate on a CIB Research Managers Symposium held in Marbella /Spain/ 1967.

The exchange of research project cards went on also in the 70s. The experimental analysis was not repeated again, a KWIC /Key Word in Context/ index made - however - possible to survey project data received in 1976².

After 1976 - in the years of serious recession of construction activities in many countries - the CIB exchange of ongoing research project cards had not been continued any more.

The idea of creating a computer based CIB information system of ongoing research arose in the Information Study Group of CIB established in 1980 in order to prepare a document as a basis for defining CIB information policies. Following up the recommendations of the Report of the Study Group, the so-called CIBORG /CIB Ongoing Research Group/ of research information specialists had been established in 1982 in the framework of the CIB Working Commission W57 Building Documentation and Information Transfer.

In the framework of the CIBORG Group specialists of the Hungarian Institute for Building Science /ÉTI/, the Hungarian Information Centre of Building /ÉTK/ and the Informationszentrum Raum und Bau /IRB/, the building information and documentation center of the Federal Republic of Germany elaborated a proposal for an ambitious computerized system. Responsible bodies of the CIB /Working Commission W57, Information Advisory Committee, Programme Committee and Board/ accepted after a series of discussions a heavily simplified version of the original proposal; it was decided that this simplified system will be operated by the Hungarian Institutes mentioned.

2. BUILDING UP AND PUBLISHING THE 1985 FILE

The programme started in 1984 with a circular letter of the General Secretariat of the CIB stimulating members for participation. 50 members gave positive answers. They were asked to send their ongoing research data for the year 1985 till the end of June. 38 participants sent the data required in due time. The distribution of their projects stored in the 1985 file of the system is shown in Table I.

The data structure of the individual records stored in the file is shown in Table II.

In February 1986 a catalogue of building research projects stored in the 1985 file had been published by ÉTI and ÉTK⁴. This catalogue contains all project records being in the file according to Table I. and applies the data structure shown in Table II. A subject index and a researcher in charge index help users of the catalogue in searching specific topics. The subject index is brought down to the level of the 758 harmonized individual keywords used for indexing the 1985 file. The relatively high number of indexing terms corresponds to the aim of the system developers to make highly specific searches possible.

The catalogue was sent to all CIB members supplying data for the 1985 file and is available to anybody through ÉTK /Hungarian Information Centre of Building, postal address: H-1400 Budapest, P.O.B. 83, Hungary, telex: 22-6564 etk-h, phone: 117-317/.

ÉTI and ÉTK intend to publish a similar catalogue for the 1986 CIBORG file, whereas ÉTK intends to make the 1985 and the following catalogues available also on floppy disks compatible to the IBM PC. Individual searches in specific topics may be asked for from ÉTK by correspondence, telex or telephone call; on-line access is planned for a later date.

3. SOME TENTATIVE REMARKS ON THE SUBJECT MATTER OF THE SET OF RESEARCH PROJECTS STORED IN THE 1985 FILE

In surveying the subject matter of the almost one-thousand individual ongoing research projects stored in the 1985 file, the investigation of the logical distribution and logical frequency of the actually used indexing terms may be of some value.

Ranging logically the indexing terms into classes and defining the number of allocated terms class-by-class, we found the following distribution:

1. building materials /kinds,function and forms of/	118 terms	15,6 %
2. building structures /elements, joints, functions of/	75 "	9,9 "
3. environmental engineering /equipment and systems/	37 "	4,9 "
4. buildings /types and parts of/	35 "	4,6 "
5. human settlements and public works	23 "	3,0 "
6. material tools /machines, instruments, equipment/	12 "	1,6 "
7. mental tools /information,methods, models, computer programs, etc./	73 "	9,6 "
8. physical and technical phenomena, properties and performance criteria/	146 "	19,2 "

9. economic and social phenomena, factors and criteria	58 terms	7,7 %
10. operations in construction technologies	50 "	6,6 "
11. operations in design and management	75 "	9,9 "
12-15. any other /e.g. sciences, economic and industrial sectors, denominations, polysemantic descriptors etc./	56 "	7,4 "

If we take the CIB-members participating in 1985 as a representative sample of the CIB membership, we may state, that the prevailing general research effort of the CIB membership is to study the physical and technical properties of building materials and structures and to decide upon their performance criteria. The least studied general problems of building research carried out by CIB-members are the problems of the technological machinery of the construction industry and the problems of human settlements and public works. A larger representation of CIB-members from Eastern Europe would very probably increase the share of research on building machines and technological equipment. In the same time there are CIB-members - in a limited number - who deal very thoroughly with the problems of human settlements and public works.

Studying the indexing frequency of the individual terms classified into the 15 classes just mentioned, and grouping them into logically coherent clusters, we have been able to state that the following clusters represent outstanding research trends and key-problems within the set of ongoing research projects we are facing:

1. Energy saving /the frequency of using this term when indexing the whole set of projects was:70/ - energy consumption /frequency:34/ - thermal performance /53/ - heating /56/ - ventilation /33/ - insulation /46/ - solar energy /28/;
2. Concrete /69/ - reinforced concrete structures /25/ - cement /23/;
3. Housing /63/ - dwellings /13/;
4. Performance /49/ - quality /20/ - test methods /39/ - monitoring /32/ - regulation /29/ - standard /34/;
5. Computer application /47/ - computer aided design /18/ - simulation models /33/ - computer programs /31/;
6. Walls /39/;
7. Durability /36/ - corrosion /35/;
8. Timber /31/;
9. Structural design /25/ - strength /24/;
10. Cost effectiveness /19/ - economic factors /17/ - construction management /17/.

It must be mentioned, that the statements of term-statistical kind expressed in this third part of our paper are only of preliminary character. A more thorough logical and mathematical study of the 1985 file of the CIBORG-system is going on, and its outcome may correct our preliminary statements. This correction could be awaited and should be needed all the more because sets of indexing terms could not be but fuzzy ones. Nevertheless, it is possible to generate comprehensive descriptions of project systems this way, and in the case of very large systems there is hardly any other way of doing it. Efforts had been made to elaborate methods for improving similar formal surveys through applying more sophisticated logical and mathematical tools. Of course final correctness can be achieved only by direct study of the individual projects themselves. Statistical investigations can be considered only as tools for locating and economizing these studies in depth.

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5. G.P.Kunszt, "Logical Models and Research Management." /Publishing House of the Hungarian Academy of Sciences, Budapest, 1975./ /In Hungarian/

TABLE I. Number of participating institutions and projects reported in 1985 according to countries^a

Nr	Name of country	Number of		Nr	Name of country	Number of	
		Institutions	Projects			Institutions	Projects
1	Australia	1	47	12	India	1	31
2	Belgium	1	25	13	Ireland	1	9
3	Brasil	1	2	14	Italy	1	2
4	Canada	2	76	15	Japan	1	21
5	China	1	15	16	Jordan	1	1
6	Czechoslovakia	1	3	17	Pakistan	1	1
7	Denmark	1	39	18	Singapore	1	21
8	Fed. Rep. of Germany	3	12	19	Spain	1	15
9	France	1	108	20	United Kingdom	13	231
10	Ghana	1	2	21	USA	3	135
11	Hungary	1	53	Total :		38	849

Notes: 1. The 3 institutes recording the highest number of projects have been: the Building Research Establishment BRE /UK/ with 156 projects, the National Bureau of Standards NBS /USA/ with 121 projects and the Centre Scientifique et Technique du Batiment CSTB/France/ with 108 projects.

2. From New Zealand the Building Research Association of New Zealand sent about 200 project records, these could come however only into the 1986 store, due to their late arrival and their content.

TABLE II. Data structure of project records

Serial number in file ^a	Name of researcher/s/ in charge
Title of project in original language	Code of country
Title of project in English	Code of language
Name of institution in original language	Keywords ^b
Name of institution in English	Short annotation
Address of institution in original language	
Address of institution in English	

^aGiven by ETK

^bData suppliers are to give free indexing words, the keywords actually used on the file are however decided upon by ETK, due to the need for keyword harmonization aiming at retrieval effectiveness and accuracy.