FOREIGN RESEARCH NEWS

The Operation and Interrelation of International Documentation Schemes in the Field of Highway Research

SIR WILLIAM GLANVILLE

INTRODUCTION

An important asset of the Board's new computerized Highway Research Information Service (HRIS) is the ability to store information on published works and current research in other countries. Thus, any HRIS user may learn, on a worldwide basis, of recent research and findings in his area of interest.

Acquisition of non-U.S. information for HRIS has been made possible through the Highway Research Board's cooperation with the British Road Research Laboratory (RRL), the Canadian Good Roads Association (CGRA), and the International Road Federation (IRF).

Both RRL and CGRA are members of the International Road Research Documentation (IRRD) group which now involves many European countries. The International Road Federation cooperates with IRRD, and the U.S. Bureau of Public Roads gives support to the information programs of both IRF and HRB.

The interrelationships of the information activities of all these agencies are fairly complicated. The following article will give the reader—particularly the HRIS user—a rather complete sketch of the international efforts for processing and transferring highway research information. The author, Sir William Glanville, is exceptionally well qualified to write on all aspects of the situation.

For many years he was the director of the RRL, and was to a large degree responsible for the RRL's prominence in the IRRD group. He is very well acquainted with HRB activity, including HRIS, and is presently a consultant to the International Road Federation. In this latter work, he is in a position to view closely the activities of IRF, IRRD and their interrelationships.

The article begins with an explanation of the IRRD network and procedures, then describes IRF activities and IRF-IRRD interrelations, and finally discusses the interrelations of HRIS with both IRF and IRRD.

In discussing the various information activities, the author has necessarily omitted or generalized certain details that could only be properly described in a much longer article.

A final point should be made. All of the activities and interrelationships discussed here are constantly being modified in order to improve them.

— Paul E. Irick
Assistant Director for Special Projects
Highway Research Board

THE INTERNATIONAL ROAD RESEARCH DOCUMENTATION SCHEME

The urgent need for a properly coordinated and effective method for the storage and retrieval of information on highways and highway transportation has been felt in Europe for many years. Serious study of the subject was begun by the Organization for Economic Cooperation and Development (OECD) some six years ago. The outcome has been the International Road Research Documentation scheme (IRRD), which has been developing under the aegis of the OECD since January 1, 1965. It was agreed upon by a group of directors of the principal research laboratories concerned with road problems some time earlier but much preliminary work was needed. The scheme is designed to meet the needs of research workers, but it can also be a source of information for engineers, technicians and others. It covers all relevant published literature.

Information on research in progress has been included recently following the initiative of the International Road Federation (IRF) in conducting a 1964 pilot study in cooperation with the Bureau of Public Roads (BPR). The way in which information on research in progress is collected and processed will be dealt with later in this article.

Member countries of the OECD who have joined the IRRD scheme share the analysis and indexing of the literature. There are three official languages: English, French and German. Indexing is by keywords; these are selected from a trilingual thesaurus developed by the documentalists of the three coordinating centers, the Road Research Laboratory (RRL) of the United Kingdom, the Laboratoire Centrale des Ponts et Chaussees (LCPC) of France, and the Forschungsgesellschaft für das Strassenwesen (FGS) supported by the Bundesanstalt für das Strassenwesen of Germany, working in collaboration with certain consultants and with engineers and the scientists of the three centers.

THE THESAURUS

The thesaurus consists essentially of words coded by four digits on a coordinate system (keywords), in which the first two numbers are determined by the subject field and the second two by the position of the word on these diagrams in a systematic way, the relation between them being emphasized by arrows; hence the term "arrowed diagram." Each subject field has its own arrowed diagram and each arrowed diagram is accompanied by a list of words on it, arranged in alphabetical order. (See Figure 1.) There are French and German counterparts of the diagrams.

The complete thesaurus contains four parts, published separately:

1. Three lists of keywords arranged alphabetically in English, French and German, giving also the code number and equivalent keyword in each of the other two languages. For example (taken from the English alphabetical list),

24.82 Blastfurnace cement—Ciment de hautfourneau—Hochofenzement
23.91 Blastfurnace slag—Laitier de hautfourneau—Hochofenschlacke
14.40 Bleeding—Ressuage—Auschwichten
62.48 Blindness--Cecite—Blindheit
49.52 Blinking light—Clignotant—Blinklicht

2. Arrowed diagrams, in each language, as already illustrated, for the subject fields listed below.

3. A list, in numerical order, of the keywords in French, English and German. For example (typical keywords selected at random),

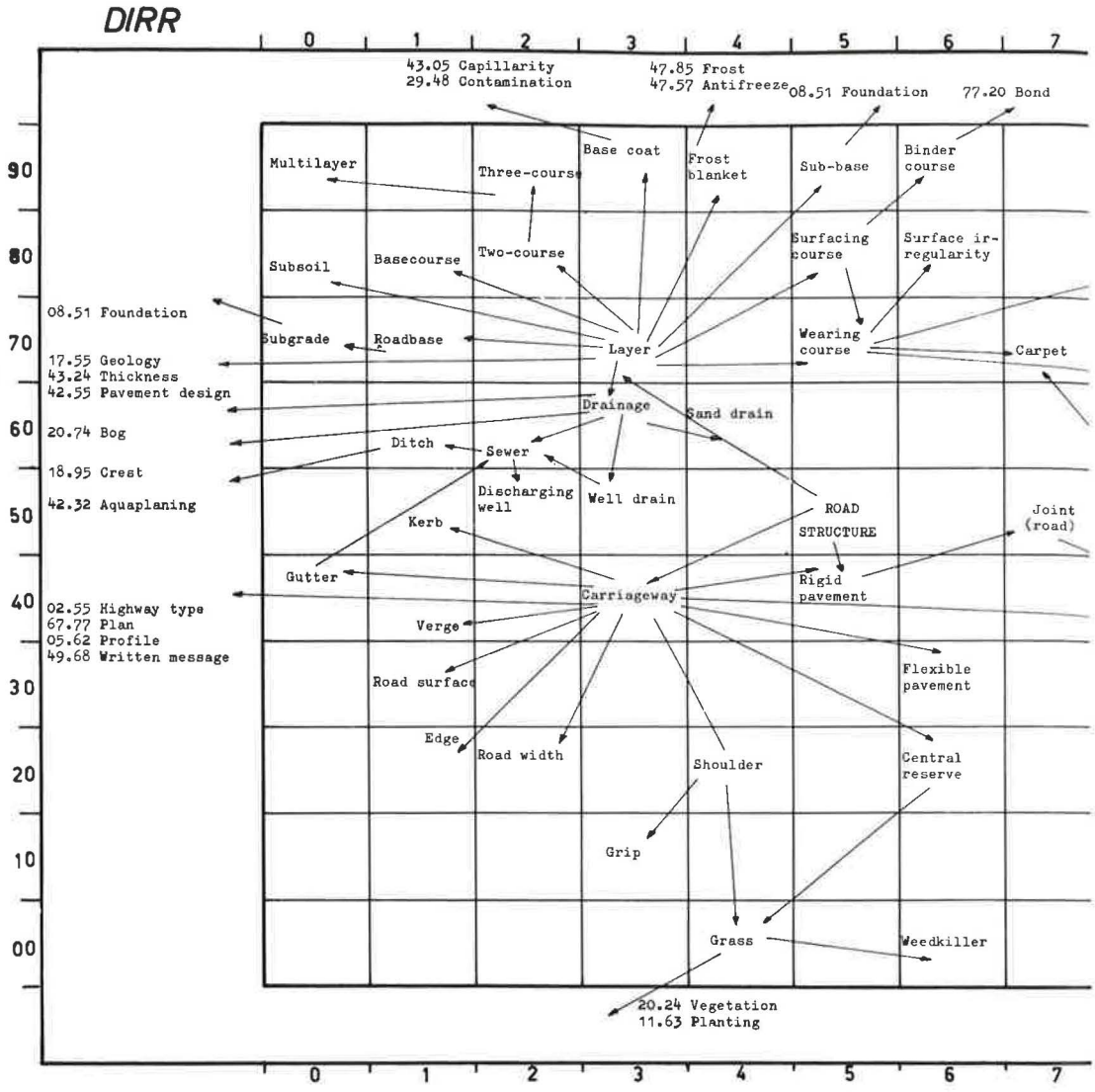
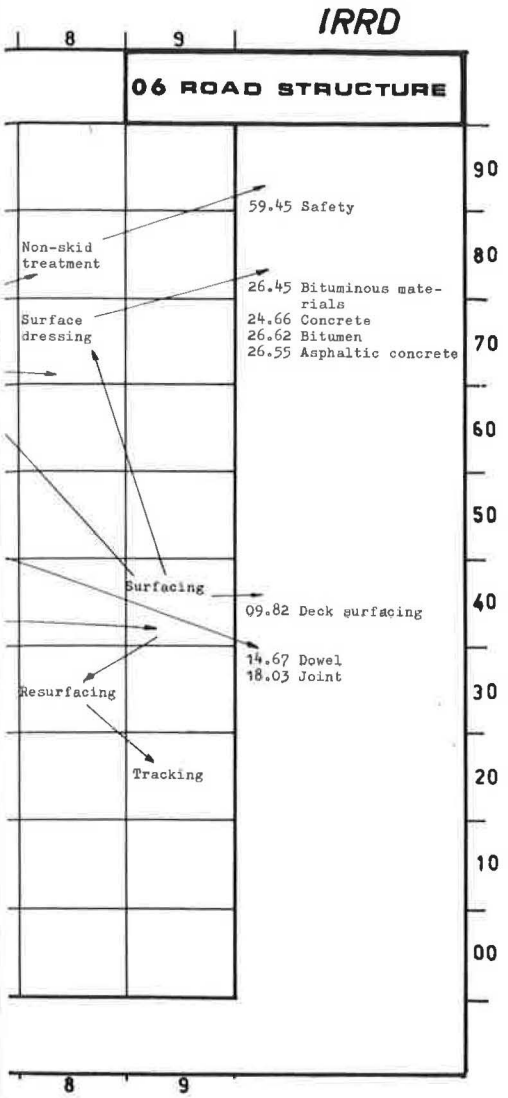


Figure 1. Illustrative Arrowed Diagram for IRRD Thesaurus Terms.

02.42 Route en terre—Earth Road—Erdstrasse
06.49 Revetment—Surfacing—Deckschicht
08.66 Ponceau—Culvert—Durchlass
21.67 Calcaire—Limestone—Kalkstein
47.61 Para-neige—Snow Fence—Schneezaun
61.32 Recensement—Traffic Census—Erhebung

4. A list of journals analyzed by IRRD member countries.

The subject fields covered are as follows:



94 • ANTIFREEZE LAYER
93 BASE COAT
81 BASECOURSE
73 • BED (GEOLOGICAL)
96 BINDER COURSE
77 CARPET
43 CARRIAGEWAY
26 CENTRAL RESERVE
40 • CHANNEL (ROAD)
73 • COURSE
52 DISCHARGING WELL
61 DITCH
63 DRAINAGE
21 EDGE
36 FLEXIBLE PAVEMENT
94 FROST BLANKET
04 GRASS
13 GRIP
40 GUTTER
24 • HARD SHOULDER
06 • HERBICIDE
57 • JOINT FILLER
57 • JOINT FILLING
57 JOINT (ROAD)
57 • JOINT SEALING • JOINT • SEALING
51 KERB
73 LAYER
90 MULTILAYER
88 NON-SKID TREATMENT
43 • PAVEMENT
38 RESURFACING
45 RIGID PAVEMENT
71 ROADBASE
55 ROAD STRUCTURE
31 ROAD SURFACE
43 • ROADWAY
22 ROAD WIDTH
64 SAND DRAIN
62 SEWER
24 SHOULDER
21 • SIDE
73 • STRATUM
95 SUB-BASE
70 SUBGRADE
80 SUBSOIL
78 SURFACE DRESSING
86 SURFACE IRREGULARITY
49 SURFACING
85 SURFACING COURSE
77 • THIN SURFACING
92 THREE-COURSE
29 TRACKING (WHEEL)
82 TWO-COURSE
41 VERGE
75 WEARING COURSE
06 WEEDKILLER
53 WELL DRAIN

Code	Subject	Code	Subject
02	Highway type	17	Geology
03	Junction	18	Geomorphology
05	Highway design	20	Hydrogeology
06	Road structure (See Fig. 1)	21	Rock
08	Engineering structure	23	Material
09	Bridge	24	Concrete
11	Construction	26	Bituminous material
14	Technology	27	Working

Code	Subject	Code	Subject
29	Weathering	64	Psychology
33	Chemical analysis	65	Medicine
34	Applied mechanics	67	Mathematics
36	Strength of materials	68	Statistics
37	Stress analysis	70	Physics
39	Apparatus	71	Mechanics
40	Test	73	Optics
42	Pavement design	74	Electricity
43	Properties	76	Nucleonics
46	Town planning	77	Chemistry
47	Weather	79	Element (chemistry)
49	Signalization—Lighting	80	Compound (chemical)
50	Traffic	82	Organic chemistry
52	Parking	83	Plastic material
53	Economics of transport	85	Information techniques
55	Vehicles	86	Administration
56	Components of car	88	Information documentation
58	Rule of the road	89)	Generality
59	Safety	97)	
61	Road user	98)	Open end terms
62	Human body	99)	

This system is very flexible, because new subject fields can be introduced and existing ones subdivided as new needs arise. Some gaps have been left in the subject field numbers to aid future development of the thesaurus, which will include the elimination as well as the addition of words.

MEMBER COUNTRIES AND THEIR RESPONSIBILITIES

The OECD countries cooperating in the scheme are Austria, Belgium, Canada, Denmark, France, Western Germany, Ireland, the Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom. There is also close cooperation with the United States through the collaboration that has been established between the Highway Research Board in Washington and the Road Research Laboratory in the United Kingdom which acts as the liaison organization between Europe and the United States.

The scheme is operated through a coordinating committee consisting of documentalists representing documentation centers in France, Germany and the United Kingdom. This committee meets every two or three months to maintain contact, to solve problems of documentation and organization which arise from time to time, and generally to further the smooth running of this unique example of international and interlingual cooperation. The meetings of the coordinating committee are attended by a representative of the OECD and by the consultants who have been concerned with the setting up of the scheme and have helped with the translation of the keywords, a problem that even now has not been entirely solved, but which is made easier by the use of arrowed diagrams and the numerical code.

The mechanism of the cooperation is essentially a sharing of scanning (analyzing), abstracting and indexing among the OECD members already listed. It involves various agreed routines as follows:

1. Each member organization analyzes the journals for which it is responsible, as listed in Part IV of the IRRD thesaurus, and in addition deals with

IRRD — FICHE DOCUMENT — INFORMATION SHEET — DOKUMENTATIONSBLATT — DIRR

1. TITRE DANS LA LANGUE DU RÉSUMÉ : TITLE IN THE LANGUAGE OF THE ABSTRACT : TITEL IN DER SPRACHE DES REFERATS : 4832

The composition and pozzolanic properties of pulverised fuel ashes. III. Pozzolanic properties of fly ashes as determined by chemical methods

NUMÉRO · NUMBER · NUMMER

2. TITRE · 2 · LANGUE (Facultatif) : TITLE · 2nd LANGUAGE (Optional) : TITEL · 2. SPRACHE (Fakultativ) : R ☐

3. TITRE · 3 · LANGUE (Facultatif) : TITLE · 3rd LANGUAGE (Optional) : TITEL · 3. SPRACHE (Fakultativ) : R ☐

4. AUTEUR (S) : AUTHOR S : VERFASSER :

J.D. WATT and D.J. THORNE

5. ÉDITEUR, SOURCE ET LIEU DE PUBLICATION : EDITOR, SOURCE AND PLACE OF PUBLICATION : QUELLENANGABE DER VERÖFFENTLICHUNG :

Journal of Applied Chemistry

6. ANNÉE 6. YEAR 6. JAHR	MOIS MONTH MONAT	VOL. BAND	N° No. Nr.	PP Pp SEITE	PHOT.	FIG.	TAB.	RÉF. BIBL. REFERENCES LIT. ANG.	PRIX PRICE PREIS
1966	2	16	2	33-9	-	6	5	8	-

7. RÉSUMÉ ANALYTIQUE (et titre en langue originale si ce n'est pas une langue officielle) : ABSTRACT (and title in original language if different from official languages) : REFERAT (und Titel in der Originalsprache, falls nicht offizielle Sprache) :

The pozzolanic activities of the fly ashes and other materials examined in parts I and II of this paper* have been determined by two chemical methods based on estimating the amount of acid-soluble material that is produced when a pozzolan reacts with lime. The conclusions reached from these results, on the relative importance of the factors that determine the activity of an ash, agree with those previously based on the crushing strengths of fly ash mortars, as already presented. There was a close relation between the amount of chemical reaction taking place in a mortar and the strength it developed, but short-term chemical assessments showed no relation to long-term crushing strengths. It was concluded that chemical methods were unlikely to have any practical value for predicting the long-term strength of a mortar in the field.

* I. "Composition of fly ashes from some British power stations and properties of their component particles". J. appl. Chem., Lond., 1965, 15 (12), 585-94.
II. "Pozzolanic properties of fly ashes as determined by crushing strength tests on lime mortars". J. appl. Chem., Lond., 1965, 15 (12), 595-604.

8. SOURCE DU RÉSUMÉ : SOURCE OF ABSTRACT : HERKUNFT DES REFERATS : R.R.L. (A)

MOTS-CLÉS/KEYWORDS/STICHWORTE	CODE/KENN-NUM.	MOTS-CLÉS/KEYWORDS/STICHWORTE	CODE/KENN-NUM.
mortar	17.44		
fly-ash	16.97		
crushing	28.83		
strength	22.25		
pozzolan	15.98		
properties	18.03		

TERMES ADDITIONNELS · ADDITIONAL TERMS · ZUSATZLICHE FACHWORTER

1 Great Britain
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

TRADUCTION EN : TRANSLATION INTO : UEBERSETZUNG LIEGT VOR IN : à at bei

DIFFUSION : LIBRE · CIRCULATION : OPEN · VERTEILUNG : FREI ☑ — CHERCHEURS UNIQUEMENT · RESEARCH ONLY · NUR FORSCHUNG ☐ — REPRODUCTION INTERDITE · NOT FOR PUBLICATION · NICHT VEROFFENTLICHEN ☐

SERA PUBLIÉ DANS BULLETIN RÉSUMÉS ANALYTIQUES : NON ☐ OUI ☐ PAR
WILL BE PUBLISHED IN ABSTRACT BULLETIN : NO YES BY
SOLL IN DOKUMENTATION VERÖFFENTLICHT WERDEN : NEIN JA DURCH

Figure 2. Illustrative IRRD Abstract of Published Information.

relevant books, monographs, reports, standards and patents published in its own language and other languages for which it has assumed responsibility.

2. Each organization prepares information sheets primarily on publications in its own sphere of interest and, as far as qualified staff are available, in marginal fields likely to be of interest to itself and to other members.

3. A standard (trilingual) information sheet (see Figure 2) is written for each item selected. A complete notice, including an informative abstract, is prepared for all road information, but items of interest to research laboratories (e.g., on pure science, or on marginal uses of materials or methods also used in road engineering) are usually recorded in identifying notices without an abstract. Abstracts aim to be objective and impartial and should be in accordance with rules given in "Guide for the Preparation and Publication of Synopses" prepared by UNESCO.

4. Each item is assigned keywords, selected from the thesaurus, which represent the basic ideas expressed in that item. They are not necessarily words actually used in the item or abstract. Rules for assigning keywords have been agreed upon by the coordinating committee and are published in the thesaurus. Provision is made for additional keywords not yet incorporated in the thesaurus and for their acceptance or rejection as new keywords to be introduced in a later edition.

5. The standard master information sheets are of translucent paper to permit cheap and quick reproduction by the diazo process. They are completed in one of the three official languages and processed at the documentation center of the appropriate member of the coordinating committee. Rules about language, the method of giving bibliographic information and transmission of documents from one organization to another are given in the thesaurus.

6. The allocation of accession numbers for identification purposes is solely the responsibility of the coordinating members. Blocks of numbers have been agreed upon by these for each official language, e.g., for 1967 and 1968 as follows:

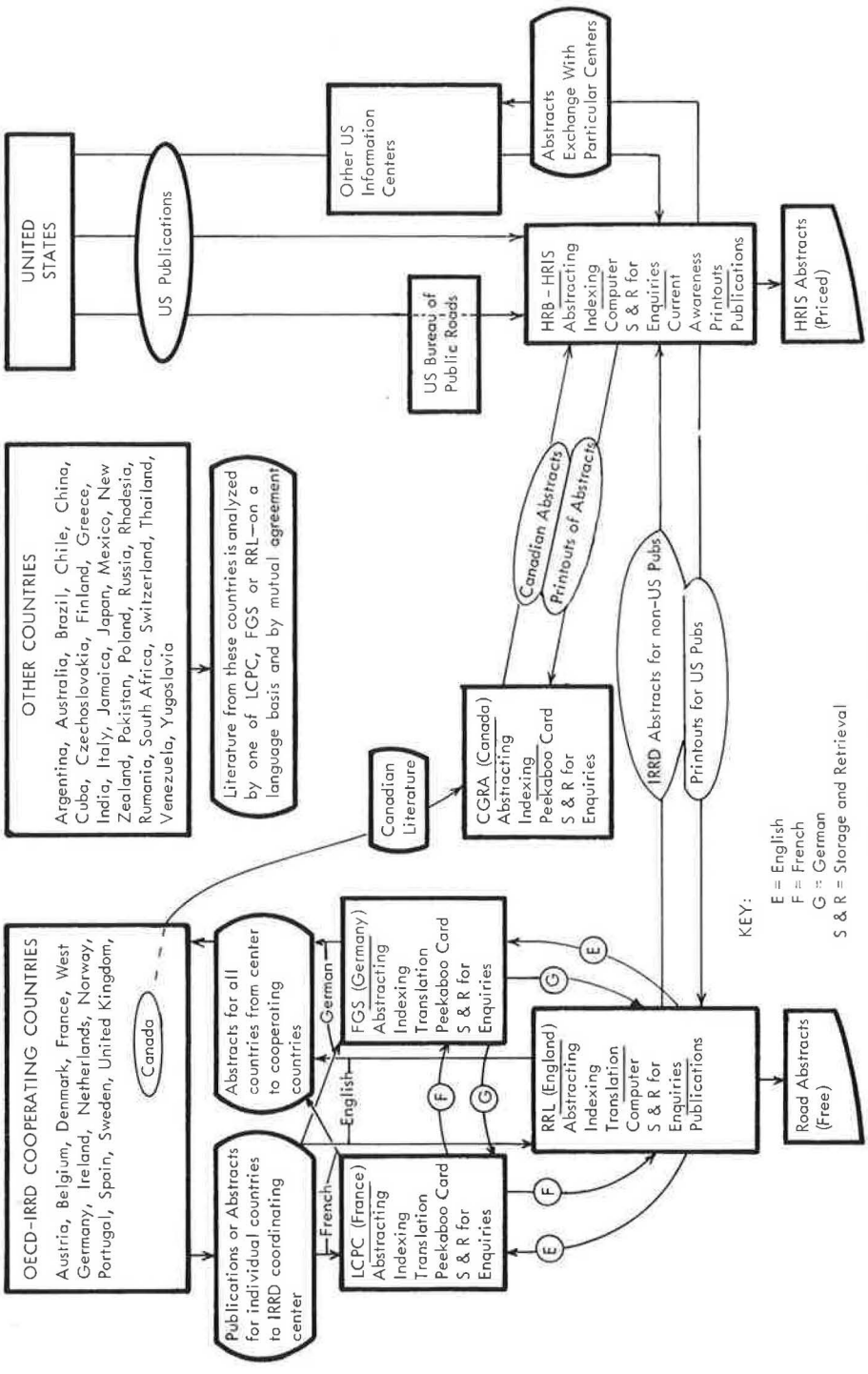
French	Nos. 20,000 to 23,999
English	Nos. 25,000 to 31,999
German	Nos. 32,000 to 33,999

Certain sub-blocks are used for items which a center wishes to record but which are not, for some reason, appropriate for inclusion in the IRRD exchange scheme. A confidential report may fall within this category.

7. Each country participating in the IRRD scheme abstracts literature originating in its own country, in the original language (optional) and in at least one of the official languages (English, French or German), and sends the resulting information sheet to the appropriate one of the three documentation centers (RRL, LCPC or FGS). These centers abstract the British, French and German literature as well as translating, editing and when necessary keywording items received from other member countries. The three centers also allocate IRRD identifying numbers as mentioned above. LCPC is mainly responsible for the Russian literature, and RRL and FGS for Italian literature.

8. Each member country is at liberty to publish, by duplicating or printing, all abstracts which are not marked "Not for Publication."

9. Each of the three main documentation centers distributes copies of the information sheets to the other members and in addition RRL sends sheets to the Highway Research Board for the HRIS service. To summarize, for information sheets in English, and for which RRL is the documentation center: Abstracts prepared in English and keyworded at RRL are numbered by RRL and sent to Austria, Belgium, Canada, Denmark, France, Western Germany, Ireland, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland (by



(Chart Prepared by the Highway Research Board)

Figure 3. International Flow of Abstracts for Highway Research Literature.

special arrangement) and also to the Highway Research Board and to OECD in Paris, which also holds abstracts from LCPC and FGS. Selected abstracts translated into English from French or German are sent to Canada, Denmark, Ireland, Norway, Portugal, Sweden and to the Highway Research Board. These arrive at RRL already numbered and keyworded from LCPC or FGS. The flow of IRRD information sheets is shown diagrammatically in Figure 3, which also brings out how the HRB services in the United States are linked through the RRL with the IRRD service in OECD member countries.

10. At RRL and HRB, storage and retrieval is computerized but other countries operate punched card systems of the "peek-a-boo" type.

RESEARCH IN PROGRESS REPORTED UNDER THE IRF-BPR PROGRAM: COOPERATION BETWEEN IRF AND IRRD

The IRRD scheme was primarily designed to deal with published information but the OECD had seen that it would be desirable at some time to cover research in progress. In 1964 the International Road Federation, under a contract with the Bureau of Public Roads, initiated a program of highway research inventories in selected countries, beginning with a pilot study in four European countries, and extending by 1967 to a total of 36 countries.

The OECD welcomed the invitation to cooperate in this effort and to incorporate the IRF-BPR reports into the framework of the IRRD scheme. To aid this coordination a Research Project Sheet (see Figure 4) was designed jointly by the OECD and the IRF for recording the relevant data. This sheet has a format similar to the IRRD information sheet for published information and, like that sheet, is in French, English and German.

The collection of information in Europe and some other countries is organized by an IRF consultant in the United Kingdom. The IRRD in Europe has provided much of the machinery for the work, and the IRF has employed and assigned the interviewers, has selected the countries to be inventoried, has negotiated the arrangements for the surveys, and has furnished the reports of the research projects to OECD and the countries concerned.

The exact procedure is essentially as described below, although it depends to some extent on the country being surveyed, on the interviewers and on the cooperating bodies in that country, including the local Road Federation. By arrangement between OECD and IRF, Germany, France and the United Kingdom have, through their respective research bodies FGS, LPCP and RRL, provided invaluable assistance to IRF interviewers and in other ways in the conduct of the surveys in these countries. In addition, FGS has provided assistance for interviewing in Austria and Switzerland. After checking, editing and assigning keywords, project sheets are sent by FGS (from West Germany, Austria and Switzerland) and by LCPC (from France) to RRL, which organizes, in collaboration with the IRF consultant in the United Kingdom, the translation of them into English, the costs being defrayed by the IRF. In other countries, IRF interviewers collect the information, complete the project sheets in English and send them to RRL, or to the IRF direct, with copies to RRL.

RRL assigns keywords to all sheets received in English and sends copies to the IRF in Washington, D.C., to the United Kingdom consultant, to the interviewer and, on request, to the appropriate organization in the country concerned, and to all IRRD member countries.

By this centralization, all research project sheets which pass through FGS, LCPC and RRL carry an IRRD identifying accession number and, in addition, the first keyword is "research project" as shown in Figure 4. The flow of Research Project Sheets is shown diagrammatically in Figure 5.

IRRD

FICHE PROJET – RESEARCH PROJECT SHEET – FORSCHUNGSARBEIT

Ficha preparada por l'OCDE en colaboración con el IIRF – Sheet prepared by OECD in collaboration with IRF – Vordruck von der OECD in Zusammenarbeit mit der IRF aufgestellt

1. INTITULÉ DE LA RECHERCHE / PROJECT TITLE / TITEL DER FORSCHUNGSARBEIT :

The Design of Guard Rails

United Kingdom
PAYS / COUNTRY / LAND

R
DIRR / IRRD

51060360
HRIS
NUMÉRO / NUMBER / NUMMER

2. LABORATOIRE CHARGÉ DE LA RECHERCHE - ADRESSE / RESEARCH ORGANIZATION IN CHARGE - ADDRESS / BEAUFTRAGTE STELLE :

Road Research Laboratory
Hammondsworth, West Drayton,
Middlesex, England

3. CHERCHEUR (S) / RESEARCH TEAM / BEARBEITER :

R. L. Moore

V. J. Jehu

FICHE PROGRAMME N° / PROJECT NUMBER / Nr

4. FINANCEMENT PAR / SPONSOR / AUFTRAGGEBER :

Ministry of Transport

5. COUT / COSTS / KOSTEN :

	TOTAL / GESAMT	ANNUEL / ANNUAL / JAEHRLICH
Devises locales / Local Currency / Landeswährung	£ 20,000	
US $	$ 56,000	

DATE DE DÉBUT / STARTING DATE / BEGINN

1967

FIN PRÉVUE POUR / ESTIMATED COMPLETION DATE VORAUSSICHTLICHER ABSCHLUSS

TERMINÉ / COMPLETED / BEENDET ☐

DATE / DATUM

6. BUTS POURSUIVIS / AIMS / AUFGABE (RÉSUMÉ / SUMMARY / REFERAT)

The efficiency of various guard rails in minimizing the effect of accidents is being studied. Both a beam and a cable type of crash barrier were designed and their motorway installation is proceeding. A novel prestressed beam barrier has been designed and is being tested. Some work was done on the use of gravel beds as vehicle decelerators and tests were made on rose-multiflora hedges for median use. Median guard rail installations are being studied in relation to their effect on accidents. Further work will be done on rail design including combined anti-glare fence and guardrail, bridge parapet design and the design of curbs for use on rural roads.

DESCRIPTEURS PROPOSÉS / SUGGESTED DESCRIPTORS VORGESCHLAGENE DESCRIPTOREN

furniture
guard rails
crash barriers
decelerators
anti-glare
accidents

7. ÉTAT D'AVANCEMENT A CE JOUR / PRESENT POSITION / STAND DER FORSCHUNGSARBEIT :

DATE / DATUM	
October, 1965	50 percent complete

Ficha préparée par / Sheet prepared by / Ausgestellt von : Date / Datum :

MOTS-CLÉS / KEYWORDS / STICHWÖRTER	CODE / KENN.NUM.	MOTS-CLÉS / KEYWORDS / STICHWÖRTER	CODE / KENN.NUM.	TERMES ADDITIONNELS / ADDITIONAL TERMS ZUSÄTZLICHE STICHWÖRTER
RESEARCH PROJECT	3378			1 2 3 4 5 6 7 8 9 10 11

8. TITRE, AUTEUR(S) ET DATE DES RAPPORTS PUBLIÉS / TITLE, AUTHOR(S) AND DATE OF PUBLICATION OF REPORTS / TITEL, VERFASSER UND DATUM DER VORLIEGENDEN BERICHTE :

N° FICHE-DOCUMENT-DIRR
No. OF IRRD INFORMATION SHEET
Nr. IRRD-DOKUMENTATIONSBLATT

Safety Fences and Kerbs, Jehu, V. J., Traffic Engineering and Control, Vol. 5, No. 9, pp. 534-540, 1964.

DIRR

Figure 4. Illustrative IRRD Form for Research in Progress Information.

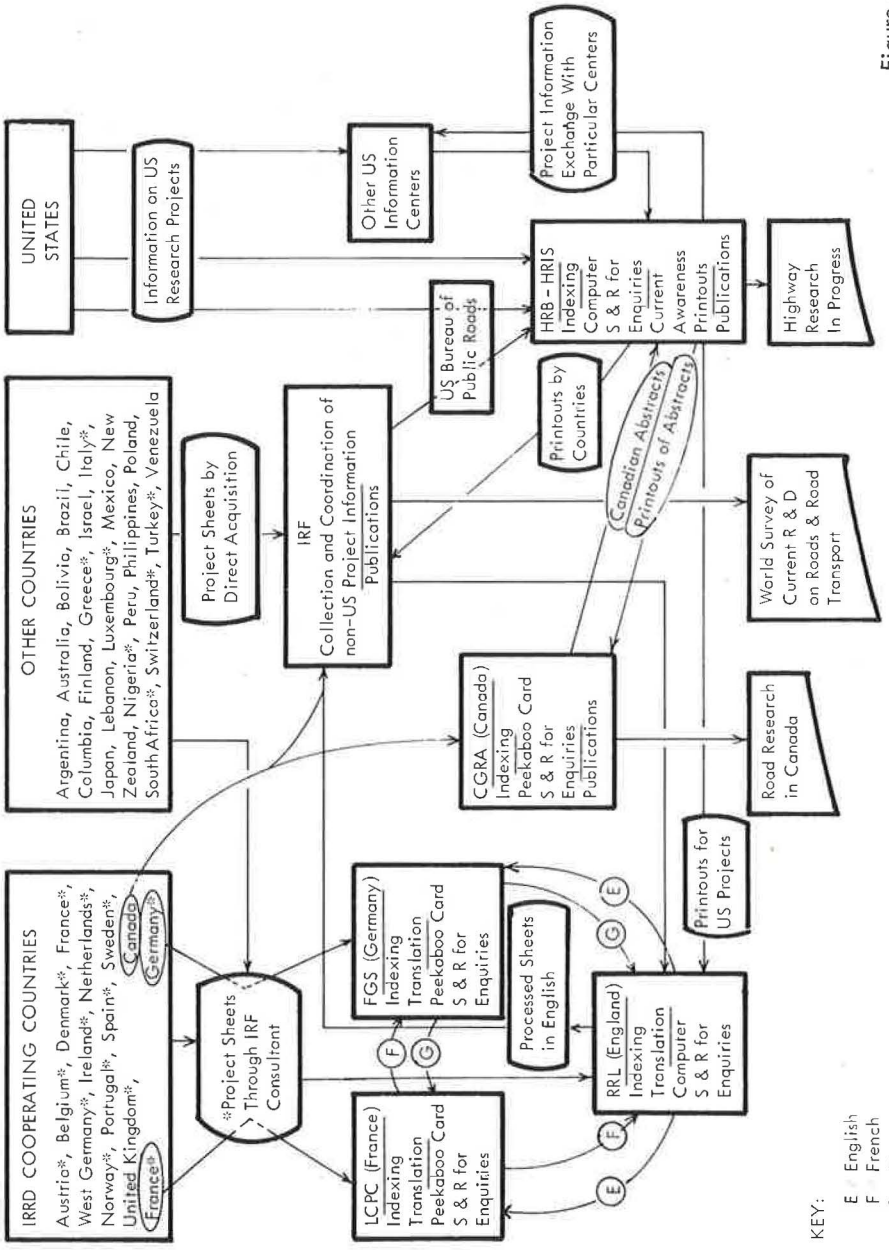


Figure 5. International Flow of Information on Current Highway Research.

(Chart Prepared by the Highway Research Board)

INTERRELATIONS OF HRIS WITH IRRD AND IRF-BPR SCHEMES

The details of the Highway Research Board computer-based Highway Research Information Service (HRIS) have already been published in Highway Research News (No. 18, March 1965 and No. 28, Summer 1967). These articles indicate how HRIS has been made possible through the cooperation from the Bureau of Public Roads and the American Association of State Highway Officials, and how information on U.S. publications and on U.S. research in progress is acquired by HRIS through HRB staff effort and via exchange with other U.S. information centers. It remains, therefore, to show how HRIS acquires non-U.S. information through interrelations with IRRD and IRF-BPR schemes. This will be done under four headings:

Published Information (IRRD information sheets)

Liaison between the United States and Europe on documentation is channeled through the Highway Research Board in Washington and the RRL. Abstracts in English are sent automatically to the HRB whether they are prepared in English from other language publications or whether they are translated into English from abstracts in French or German. Those considered suitable for inclusion in the HRB computerized service are incorporated into HRIS. Similarly, abstracts prepared in the United States for the HRIS are sent as printouts to the RRL where a selection is made of material to be put into the IRRD scheme. Thus both HRB and RRL have direct access to the complete range of abstracts, but each selects from the other those items deemed most suitable for inclusion in its own documentation system.

The liaison goes further still; to obviate some of the duplication of effort by HRB and RRL these bodies have agreed on a division of labor in analyzing and abstracting some of the journals published in English; each therefore relies on the other to a considerable extent in certain areas of literature. Since Canada, through the CGRA, is a cooperating member of the IRRD scheme, Canadian literature is abstracted by the CGRA, and sheets are sent to both HRB and RRL, so that Canadian literature is thoroughly integrated with both the HRIS and IRRD schemes.

Current Research Projects

Projects covered by the IRF inventories of current research are listed in the IRF reports entitled "World Survey of Current Research and Development on the Roads and Road Transport." Each project is described by its title, objective, current status and agencies concerned. This information, together with a more lengthy project summary, is sent through the BPR to HRB for inclusion in HRIS files. Canadian research project sheets are sent to both IRF and HRIS. The HRB sends printouts of all research project abstracts to RRL, which thus has access to all those recorded from within the United States from whatever source and from other countries covered by IRF inventories and is free to select items for inclusion in the OECD/IRRD/IRF documentation system. Both HRB and IRF operate updating schemes for the areas they cover, and provision is made for amendments and additions to the records of research projects that remain active for several years and for deletion of records at a suitable time after the projects have been completed.

Once each year the HRIS file of research in progress is published in Highway Research In Progress (HRIP). Approximately half of the projects in HRIP represent non-U.S. research that has been acquired through the cooperative efforts described above.

Indexing

Both the HRIS and the IRRD systems employ keywords taken from a thesaurus, but they do not use the same thesaurus. This is not an ideal arrangement, because indexing of material held by both organizations has to be done twice; unfortunately it is at present unavoidable. The HRIS thesaurus contains many more terms than the IRRD thesaurus; this in itself does not mean that it is necessarily more comprehensive. The policy adopted by IRRD has been to use single-word keywords as far as that principle is compatible with the vagaries of the English, French and German languages; it works on the principle that equivalent keywords should have the same connotation in all three languages. Pre-coordinated keyword terms, such as "strain gauge" or "traffic control devices," are only used if the individuals words do not already appear or because of language problems; when they are adopted it is only after discussion between the members of the coordinating committee, where the pros and cons are debated. The objective is to keep the number of keywords to a minimum. Experience to date suggests that a maximum of about 3,000 coded keywords (excluding synonyms) will probably serve the whole field even if it is expanded beyond the subject fields listed earlier in this paper. The OECD thesaurus still contains some English terms which seem rather peculiar to enquirers; some of these are being revised, some arise from translation difficulties and have been deliberately selected, and some have been adopted to obviate the use of ambiguous words. The documentalists are aware of all this and expect to be amending and improving the thesaurus for several years.

The RRL has no experience of indexing on the basis of the HRB thesaurus, which contains a large number of pre-coordinated terms and which has some 10,000 terms.

It would tidy up indexing if there were only one agreed thesaurus for all road research documentation and for all languages. One day this may be possible, but, as many know, even the English language is not quite the same language on both sides of the Atlantic and it is possible that a joint English-only thesaurus of the simplest kind would have to make provision for innumerable synonyms and to slur over some nuances of meaning.

Format of Forms

This is not the place to consider in any detail this aspect of the cooperative documentation schemes. However, some difficulties in processing of material exchanged between HRIS and IRRD arise because in Europe a different size of paper and a different layout of forms are used from those used by HRB. It is to be hoped that, with a little give and take on each side, a form suitable for all needs can be evolved, so that information sheets can be equally easily put into both systems and that retyping, which inevitably involves checking for accuracy, can be obviated.

The RRL does not yet have a computer printout system for abstracts, but if this does come it is to be hoped that the result will tie in with the HRB method.

FOUR MORE COUNTRIES ARE INCLUDED IN JOINT IRF-FHWA HIGHWAY RESEARCH SURVEY PROJECT

Highway research and development activities in four Asian countries—Ceylon, India, Pakistan and Thailand—will be surveyed under a new contract between the International Road Federation and the Federal Highway Administration's Bureau of Public Roads.

The contract, announced by Federal Highway Administrator Lowell K. Bridwell, is the latest step in a pilot project begun in 1964 to enable international exchange of highway research findings. The survey is conducted by the IRF, and already embraces information about 3,500 research projects in 35 foreign countries. This information has been compiled, abstracted and stored for computer retrieval in the Highway Research Board's Highway Research Information Service.

Bridwell also announced that resurveys will be made in the following 12 countries to update information gathered earlier: Australia, Japan, New Zealand, Philippines, Germany, Ireland, Italy, Argentina, Brazil, Mexico, Venezuela and Canada.

In addition, in-depth studies will be made of selected research projects believed to be of particular interest to the United States.

Bridwell said the inventory includes research projects recently completed, currently in progress, and planned for the immediate future, as well as areas that are in need of investigation.

The compilation of worldwide information on highway-related research, he said, avoids duplication in future research, saves both time and money, and benefits all nations. The storehouse of data, which is easily accessible to engineers and administrators, covers all phases of highway transportation planning, construction, maintenance and operation.

Other countries that have already been surveyed are Australia, Belgium, Bolivia, Chile, Colombia, Denmark, Finland, France, Greece, Israel, Lebanon, Luxembourg, Netherlands, Nigeria, Norway, Peru, Portugal, South Africa, Spain, Sweden, Switzerland, Turkey and the United Kingdom.