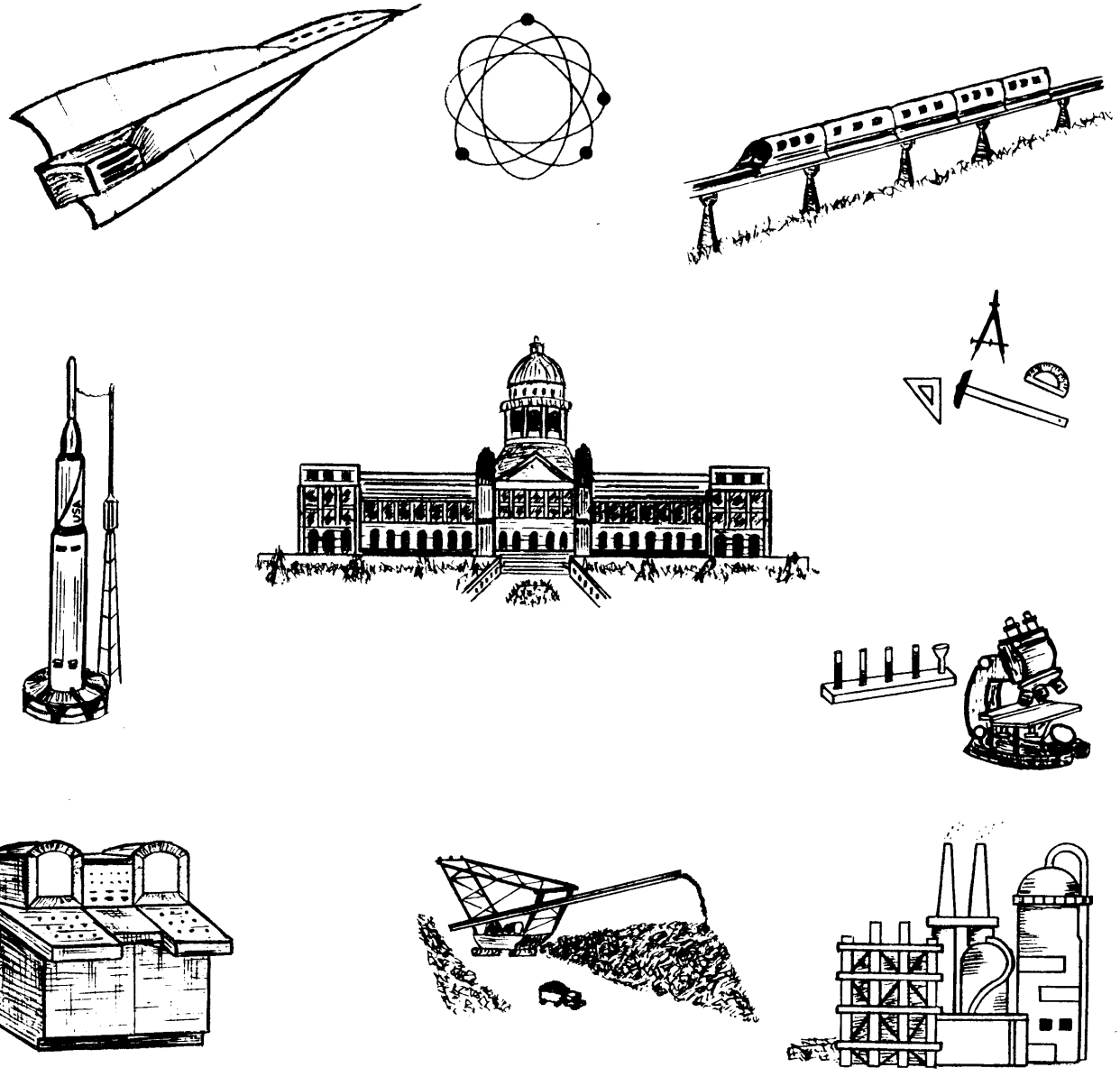
Scientific and Technical Information for the Kentucky General Assembly Final Report



Research Report No. 157

LEGISLATIVE RESEARCH COMMISSION

Frankfort, Kentucky

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The Kentucky Legislative Research Commission is a sixteen-member committee, comprised of the majority and minority leadership of the Kentucky Senate and House of Representatives. Under Chapter 7 of the Kentucky Revised Statutes, the Commission constitutes the administrative office for the Kentucky General Assembly. Its director serves as chief administrative officer of the legislature when it is not in session.

The Commission and its staff, by law and by practice, perform numerous fact-finding and service functions for members of the General Assembly. The Commission provides professional, clerical and other employees required by legislators when the General Assembly is in session and during the interim period between sessions. These employees, in turn, assist committees and individual members in preparing legislation. Other services include conducting studies and investigations, organizing and staffing committee meetings and public hearings, maintaining official legislative records and other reference materials, furnishing information about the legislature to the public, compiling and publishing administrative regulations, administering a legislative intern program, conducting a pre-session orientation conference for legislators, and publishing a daily index of legislative activity during sessions of the General Assembly.

The Commission also is responsible for statute revision, publication and distribution of the **Acts** and **Journals** following sessions of the General Assembly and for maintaining furnishings, equipment and supplies for the legislature.

The Commission functions as Kentucky's Commission on Interstate Cooperation in carrying out the program of the Council of State Governments as it relates to Kentucky.

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Vic Hellard, Jr.
Project Manager

Dr. Michael R. Carrell
Project Director

Research Report No. 157

Legislative Research Commission
Frankfort, Kentucky
September, 1979

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FOREWORD

The State Science, Engineering and Technology (SSET) program of the National Science Foundation was initiated to assist each state in formulating a mechanism for providing scientific and technical information to policymakers. Forty-two state legislatures and forty-nine state executives applied for and received planning grants.

The Kentucky General Assembly provided $20,003 in matching funds and received a $25,000 NSF developmental grant to study its scientific and technical information needs. This report summarizes the study of the Kentucky General Assembly's scientific and technical needs and proposes a mechanism for improving future information acquisition. We wish to thank all those who assisted in this project: all members of the Kentucky General Assembly, and especially Senate President Pro Tem Joe Prather and House Speaker William Kenton; Legislative Research Commission staff members Brian Kiernan and Dr. John Paul Nelson; and the National Conference of State Legislatures.

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The Capitol
Frankfort, Kentucky
September, 1979

TABLE OF CONTENTS

SUMMARY

The purpose of the State Science, Engineering and Technology (SSET) program was to enable state legislative and executive branches to determine their need for additional scientific and technological information. In the state of Kentucky the legislative branch utilized the program, which was developed by the National Science Foundation, to study its science-related needs.

Kentucky's General Assembly is somewhat unique in that it meets only sixty days in every other year and is dominated by one political party. These and other conditions give Kentucky one of the most powerful executive branches of government in the United States. Thus, the General Assembly accepts and expects strong leadership by the governor. The General Assembly out of necessity has relied heavily on the executive branch for legislative information, especially that of a scientific nature, which is often complex and time-consuming to develop. The needs assessment reported in this document shows that of all other sources of scientific information only committee hearings, other legislators and the Legislative Research Commission were often used. The LRC probably represents the only often used information source which is primarily independent of the executive branch. The legislators overwhelmingly reported that they often used the LRC, were satisfied with it and felt that if outside scientific expertise is obtained it should be through the LRC. Therefore, it was recommended that any additional source of scientific and technical legislative information be internally based in the LRC. The members of the General Assembly would utilize such a source and be able to easily interpret the information provided. It was further recommended that all scientific bills be directed to an appointed "scientific and technical advisor." The advisor could further enhance his/her expertise by developing a source trust of external experts who could be utilized to answer scientific questions.

This recommended model combines the advantages of models currently used in other states. Several other states have already found large, expensive scientific information systems are not a necessity. Instead what is needed is an internal source who is politically knowledgeable and able to provide scientific information concisely.

CHAPTER I

INTRODUCTION

The State Science, Engineering, and Technology program (SSET) was developed by the National Science Foundation (NSF) and the National Conference of State Legislatures (NCSL) with funding made available by the federal government with state matching funds. The purpose of the program is to encourage state legislatures and executive branches to study their need for scientific and technical information. The legislature of Kentucky has been, and in the future will continue to be, confronted with many issues of significant consequence which contain scientific and technical information. Science-related bills concerning Kentucky must be confronted by the legislature, particularly since more federal government action is leaving decisions regarding science and technology up to the states. Legislators must form judgments in the highly charged political arena while often not having a complete knowledge of the technical fields on which many of the bills are based. The legislators receive information from lobbyists and interest groups, as well as the governor's office, but many times do not have enough independent sources of information to be able to make decisions in the best interest of the people.

In Kentucky the political system is based upon a separation of powers among the executive, legislative, and judicial branches of government. This makes it necessary that the legislature have the same independence of information from the governor's office and lobby groups in scientific and technical matters as it does in other matters. In Kentucky the executive branch has almost a monopoly of information concerning scientific and technical issues. Often the legislator, who is only in session for sixty days every other year, simply cannot depend upon other sources to give him the knowledge he needs to make decisions, whereas the executive branch is in office year round.

The Kentucky General Assembly's participation in the SSET program began in September, 1978. The original proposal submitted by the Legislative Research Commission to the National Science Foundation stated that the objective of the program would be to evaluate the General Assembly's need for scientific and technical information and to assess methods by which current information has been provided. While certainly there is a need to make additional scientific and technical information available to the legislators, questions concerning the effectiveness of current information sources must be addressed. The finest source of scientific information in the world would not be of benefit if legislators would not use it. Therefore, it is necessary that we determine whether the legislators are happy with the information system they currently have, and what type of system, if any, they would like to see added. Thus, this report will address the issue of how effective the current scientific and technical information which is available to the legislators has been and the possible need for additional scientific and technical information.

Information for this study was gathered from three major sources: 1) a questionnaire which was given to legislators, containing questions concerning scientific and technical information they have received in the past; 2) a content analysis of the legislation introduced during the past two regular sessions of the Kentucky General Assembly; and 3) discussions with participants in SSET programs and seminars which were presented by the National Conference of State Legislatures. It was quite useful to have information

from other states, because many states had been participating in the National Science Foundation program for a long time, and, as was discovered during the process of the study, had come to some useful conclusions. The questionnaire which was completed by the legislators was particularly enlightening and surprisingly left little doubt as to their opinion on many questions concerning the scientific and technical information utilized in making decisions during sessions of the General Assembly. Undoubtedly, the questionnaire results provided the best indication of information needs and potential new sources of information for the General Assembly.

CHAPTER II

THE PRACTICE IN KENTUCKY

The Kentucky constitution provides for three coordinate branches of government, vesting legislative authority in "a House of Representatives and a Senate, which, together, shall be styled the 'General Assembly' of the Commonwealth of Kentucky."

In Kentucky's early history, the legislature was the dominant branch, with few restrictions on its powers and procedures. However, a steady decline in legislative prestige over several years utlimately led delegates to the 1890 constitutional convention to devote a substantial amount of time to defining the duties and powers of the legislative branch. The General Assembly is named directly in 140 of the constitution's 263 sections, and since 1891 constitutional limitations on legislative powers have been extensive. One excellent example of such restriction is that under the 1792 and 1799 Kentucky constitutions the legislature met annually in unlimited sessions, but the 1891 document limits sessions to only sixty days every other year.

While the constitution imposes some restraints, the legislature retains its important role in the governmental process. All legislative power is lodged in the General Assembly, and no other branch of the government may exercise power belonging to the legislature. The General Assembly bears the principal responsibility for all expenditures of state funds, and all measures for raising revenue must originate in the House of Representatives. The legislature has complete control over the organization and conduct of its own business. Other legislative functions include proposing amendments to the state constitution, bringing of impeachment charges, advice and consent on certain appointments, and oversight of administration by the executive branch.

The Kentucky constitution provides that the General Assembly shall convene in regular session on the first Tuesday after the first Monday in January of even-numbered years. Regular sessions of the General Assembly are limited to sixty days. A "day" is a calendar day, excluding Sundays and holidays, whether or not the legislature meets. All the General Assembly's work must be completed in this time, unless the governor calls a Special Session.

The constitution specifies that there be thirty-eight senators and one hundred representatives. Senators must be at least thirty years old. Representatives must be at least twenty-four years old. Each house is responsible for eligibility requirements.

Primary elections for nominating members of the General Assembly are held on the first Tuesday after the fourth Monday in May of the year preceding a regular session. Candidates who are unopposed or who receive a plurality of votes in the primary receive a certificate of nomination. Their names are placed on the ballot for the regular election, which is held the first Tuesday after the first Monday in November.

Representatives are elected for two-year terms. Senators serve four-year terms, with half the Senate elected each two years. Approximately a one-third turnover is expected for each new session of the General Assembly.

Every two years a pre-session meeting of legislators and

legislators-elect following the November election is held in one of the Kentucky state parks. The members are briefed in regard to the chief problems facing the state and expected major legislative proposals by the governor. Further, members belonging to each political party meet as party groups for each house to make tentative decisions regarding their choices for leadership positions. The following legislative leaders, except the Lieutenant Governor, are named at the beginning of the regular session:

SENATE	HOUSE
President: Lieutenant Governor (Ex Officio)	Speaker (Elected by members)
President Pro Tempore: (Elected by members)	Speaker Pro Tempore: (Elected by members)
Assistant President Pro Tempore: (Elected by members)	
(Elected by Party Caucus)	(Elected by Party Caucus)
Majority Floor Leader	Majority Floor Leader
Assistant Majority Floor Leader	
Minority Floor Leader	Minority Floor Leader
Majority Whip	Majority Whip
Minority Whip	Minority Whip
Majority Caucus Chairman	Majority Caucus Chairman
Minority Caucus Chairman	Minority Caucus Chairman

Much of the work of the legislature is done through several types of committees. Permanent committees, established by rules of each house to handle legislation on a particular subject, are known as standing committees. All bills and resolutions having the effect of law must be referred to a standing committee for study. During the interim between regular sessions, standing committees function as subcommittees of the Legislative Research Commission and meet to conduct appropriate business.

The General Assembly utilizes the following fifteen standing committees in both Senate and the House of Representatives, of identical nomenclature and with proportional partisan representation:

1. Agriculture and Natural Resources
2. Appropriations and Revenue
3. Banking and Insurance
4. Business Organizations and Professions
5. Cities
6. Counties and Special Districts
7. Education
8. Elections and Constitutional Amendments
9. Health and Welfare
10. Highways and Traffic Safety
11. Judiciary-Courts
12. Judiciary-Statutes
13. Labor and Industry
14. Public Utilities and Transportation
15. State Government

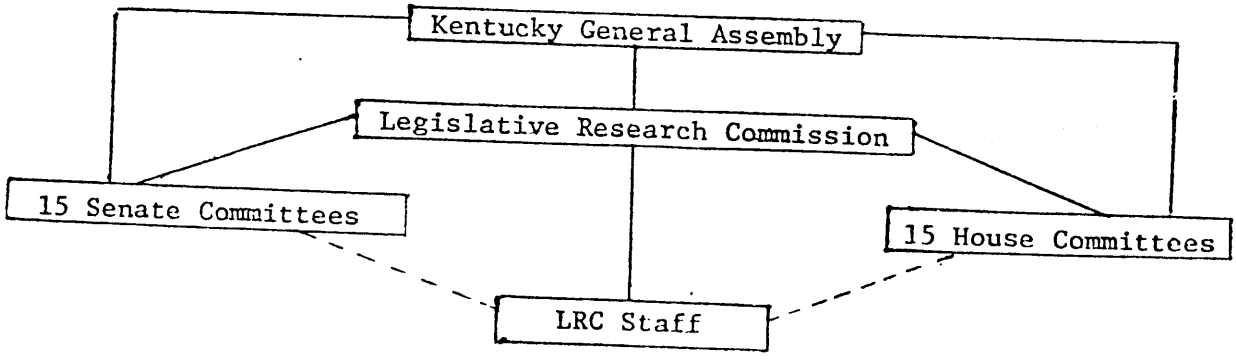
The legislature is required to make decisions in a very limited time on many issues that require expert knowledge and technical ability. The need for more time for legislative planning and for expert research assistance on legislative problems is common in some degree to all states. In 1933, Kansas established a Legislative Council to address the problem. Basically, the Council is composed of a small group of the leadership, who meet periodically between sessions, determine important issues for upcoming sessions, and employ staff to gather information relative to these issues.

Kentucky established a Legislative Council in 1936. It consisted of members from the House, the Senate, and the executive branch. The Council generally reflected the point of view of the governor. By 1948, the Council was virtually inactive, because of the lack of a research staff.

In 1948, the Council was reorganized and renamed the Legislative Research Commission. The LRC has subsequently become an important statutory agency of Kentucky government, while being the service arm of the General Assembly. Its membership is bipartisan, being composed of the leaders of each party in both houses. The President Pro Tempore of the Senate and the Speaker of the House co-chair the Commission.

The Kentucky LRC corresponds to legislative councils found in other states. It employs a Director, who presides over a staff of approximately 150 employees that prepare bills and resolutions, and conduct limited and in-depth research for interim and standing committees. The Commission has a Statute Reviser, who codifies acts of the General Assembly and incorporates them with existing laws. Staff reports on a variety of subjects are published each year and made available to the public upon request.

Since 1968, joint panels of senators and representatives with jurisdictions corresponding to the General Assembly's standing committees have met between regular legislative sessions as subcommittees of the LRC. Such committees represent an important step toward giving the legislative branch increased continuity and strength, and keeping it better informed. The LRC staff serves these interim committees just as it serves standing committees when the General Assembly is in session.



Kentucky could be classified as a modified one-party Democratic state. At present, there are about 1.2 million registered Democrats and .5 million registered Republicans. Now, as in most years, there is more than a two-to-one ratio of Democrats to Republicans elected to state offices. However, the various factions of the Democratic Party about once in every twenty years fail to "get together" and consequently allow Republicans to win one or more of the top state offices. Most political scientists would agree that Kentucky traditionally has one of the most powerful governors in the United States because of the party system in Kentucky and the short sessions of the General Assembly.

The Kentucky General Assembly has accepted and expects an active participation by the governor in the legislative process. There are a number of sources for the power of the governor's office in Kentucky: the constitution, statutes, his party leadership, the governmental setting, and his powers relative to the budget, special sessions and the veto. In addition to granting certain powers and responsibilities to the governor in the legislative process, the constitution and the statutes impose certain limitations on the General Assembly which enhance the influence of the governor. Certainly, the limited sessions enhance the governor's ability to dictate needed legislation; since many bills are not passed and sent to the governor until late in the session, he may wait and veto measures after adjournment. As a rule, Kentucky governors have used the veto with restraint. However, most vetos have occurred after adjournment, thus providing the General Assembly no opportunity to override.

Kentucky has experienced substantial growth in the power of the executive branch because of increased complexity of issues and the relative power and size of the executive branch of government. With issues becoming more complex, the advantages of the executive, with its larger staffs and greater expertise, are great. Until the legislature has a comparable staff and expertise, the Kentucky General Assembly must continue to rely heavily on the executive branch for information.

CHAPTER III

NEEDS ASSESSMENT

Almost immediately during the course of this study it became apparent that the terms "science" and "technology" are confusing terms, because they have various meanings. This problem became even more apparent in discussing with the members of the Legislative Research Commission and individual legislators their definition of scientific and technical issues. Given a lack of consensus among members of the General Assembly and the members of the Legislative Research Commission, the researcher decided to talk with individuals from other states. At conferences sponsored by the NSF, it was discovered that other states were having the same problem specifying what was meant by terms like "science" and "technology." However, it was also noted that the terms differ from state to state according to the specific types of legislation relevant within a particular state. Thus, issues concerning mining safety, which might be very important in Kentucky, Wyoming, or West Virginia, may not be at all important in Florida or Vermont. Discussion with various individuals involved in the NSF project indicated that it would be appropriate to confine scientific and technical issues within the state of Kentucky to those which were basically concerned with the natural sciences and not those concerned with the sociological sciences or purely economic considerations.

The needs assessment for the state of Kentucky was designed to determine whether the current members of the General Assembly felt they could make effective decisions concerning scientific and technical issues with the current information sources, or whether there is a genuine need for an improved mechanism. The needs assessment had two primary information-gathering phases in the state. The first phase was a review of legislation that had been introduced in the last two regular sessions of the General Assembly. Bills introduced during 1976 and 1978 regular sessions of the General Assembly were reviewed, and over 3,300 bills that were introduced were studied to determine first whether they were of a scientific and technical nature, and second, what their eventual fate was during that session, i.e., whether they passed or failed.

As the figures in Table 1 show, in the 1976 regular session 1,245 bills were introduced. Of the bills introduced, 29.6% passed. Only fifty-two bills of a scientific and technical nature were introduced; this represents less than 5% of the total bills introduced during the session. Thirteen (or 33%) of the scientific and technical bills introduced during this session passed. This passing percentage was 4% higher than the percentage of total bills that passed, and gives some indication that bills of a scientific and technical nature did not suffer in their probability of being passed simply because they were of a scientific and technical nature. Possibly this is an indication that the legislators could deal effectively with bills of a scientific and technical nature and did not have trouble debating and passing those bills simply because they might have been more complicated than the other bills introduced during the session.

During the 1978 regular session of the General Assembly, 1,141 bills were introduced. Of the total bills introduced, 35.8% passed. This represented almost a 6% increase over those that passed in the 1976 regular session. During the 1978 regular session, 77 scientific and technical bills were introduced, an increase of 25 (almost 50%) over the 1976 regular session. During

the 1978 regular session, 38 of the scientific and technical bills passed, almost 50% of the total scientific and technical bills introduced. This is a remarkable 17% increase in scientific and technical bills passing in comparison to the 1976 regular session.

The data of Table I tell an interesting story. From 1976 to 1978 almost 50% more scientific and technical bills were introduced. As a percentage of total bills introduced, the scientific and technical bills increased from 4.2% in 1976 to 6.7% in 1978, a remarkable percentage increase for only a two-year period. However, it is apparent that members of the General Assembly were not confused or overcome by the percentage increase of scientific and technical bills in the 1978 regular session. This becomes apparent when it is realized that the percentage of scientific and technical bills that passed during the 1978 regular session increased substantially (17%) over the 1976 regular session. Therefore, it might be concluded that in Kentucky the percentage of bills dealing with scientific and technical matters certainly is not overwhelming - in the last session, only 6.7%. However, the percentage did increase sharply from the previous regular session, and the members of the Kentucky General Assembly apparently were able to deal effectively with the scientific and technical bills, inasmuch as they were able to come to agreement and pass a substantially larger proportion of those bills in the last regular session than they had in the previous regular session.

Table 2 contains the executive action on the scientific and technical bills of the 1978 and 1976 general sessions. It is particularly interesting to note that most of the scientific and technical bills were in the areas of agriculture, the environment, and mining, as well as other areas such as consumer affairs, drugs, and energy.

TABLE 1

KENTUCKY SCIENTIFIC AND TECHNICAL LEGISLATION,
PAST TWO REGULAR SESSIONS

1978 Regular Session

Total Bills Introduced	1,141
Percent of Total Bills that Passed	35.8%
S&T Bills Introduced	77
S&T Bills as Percentage of Total Bills	6.7%
S&T Bills Passed	38
S&T Bills Failed	39
S&T Percent Passed	49.3%

1976 Regular Session

Total Bills Introduced	1,245
Percent of Total Bills that Passed	29.6%
S&T Bills Introduced	52
S&T Bills as Percentage of Total Bills	4.2%
S&T Bills Passed	13
S&T Bills Failed	39
S&T Percent Passed	33%

TABLE 2

1978 SESSION: EXECUTIVE ACTION
ON SCIENTIFIC AND TECHNICAL BILLS
(P = Passed, F = Failed)

Agriculture			
Maleic hydrazide, use of	HR	12	F
Pesticide applicator liability	HB	534	F
Pesticides and food	SB	135	P
Sodium nitrate ban, opposing	SR	72	P
	HCR	33	F
	HR	142	P
Watershed conservancy district	HB	147	F
Weather information	HJR	78	P
Architectural barriers	HB	688	F
Surface mining	HB	114	P
Water well drillers	HB	696	F
Electrical contractors & Electricians	HB	769	F
Fire Protection Classification	HB	42	P
Flood abatement assistance	SB	170	F
	HB	310	F
Planning and zoning agricultural	HB	535	F
Plans and regulations	HB	456	F
Consumer Affairs			
Drug labeling	SB	254	P
Purchasing and labeling of foods and cosmetics	SB	135	P
Product liability	SB	119	P
Drugs			
Controlled substances, cases	HB	572	F
Controlled substances, definition	SB	115	P
Amphetamines, ban use for dieting	HB	154	F
Amygdalin (laetrile)	HB	70	F
Controlled substances, distribution of	HB	140	P
Controlled substances, penalties	HB	664	F
Controlled substances, production penalty	SB	106	F

Energy

Conservation, essential home energy	HB	431	F
Energy, consuming equipment state purchases	HB	363	P
Energy utility regulation	HB	547	P
Gasohol project endorsement	HR	14	P
Research Center property and contract	SB	134	P

Engineers and Surveyors

Engineers qualification for licensure	SB	354	P
	HB	774	F
Land surveyors qualifications for license	SB	358	F
Plan approval required	HB	733	F

Environment and Conservation

Actions to protect environment	HB	453	F
Application fee for certificates of environmental compatibility	HB	383	P
Broad-form deed	HB	417	P
Fish and Wildlife	SB	102	P
Litter abatement	HB	253	P
Motor vehicle emission inspections program	HB	388	F
Nuclear waste disposal	HB	647	F
	HB	648	F
Permits for discharging into public water or treatment	HB	359	P
Pollution control facilities	SB	336	P
Radioactive waste control	SB	94	P
Recycled paper, state agencies' use	SB	139	F
Resource recovery demonstration	SB	136	P
Sorting of maximum increases of air contaminants	HB	384	P
Soil classifier certifications	HB	52	F
Solid and hazardous wastes	SB	174	P

Solid waste collection sites	HB	428	F
Solid waste management	SB	301	P
Structural pest control	SB	185	P
Waste water disposal systems	HCR	29	P
Water well drillers requirement	HB	696	F
Water withdrawal permits	SB	205	F
Wild rivers act, study	SCR	32	F
Asbestos and Fiberglass - effects on public	HR	46	P

Land Use

Archaeological sites	HB	463	F
Development in flood prone areas	HB	72	P
Land use planning study	HCR	69	P

Mining

Abandoned mine reclamation program	SR	53	F
	HR	97	F
Blasters, licensure fees	HB	245	P
Broad-form deed	HB	417	F
	SB	347	F
EMT in underground coal mines	HB	443	F
Requirements for out-of-state	HB	203	F
Surface mining, revision	SB	273	P
	SB	281	P
Underground coal practices and certification	SB	175	P

Nuclear Energy

Radioactive waste control	SB	94	P
Waste disposal sites	HB	647	F
	HB	648	F

Occupations and Professions

Emergency medical technicians certification	HB	101	P

1976 SESSION: EXECUTIVE ACTION
ON SCIENTIFIC AND TECHNICAL BILLS
(P = Passed, F = Failed)

Agriculture			
Bovine Disease Control	SB	317	F
Pest control	HB	62	F
Rabies control	HB	172	P
Architects			
Public Bldg.	HB	801	F
Coal			
Gasification plant location	HR	47	F
Mine reclamation regulations	HB	490	F
Miners' Pneumoconiosis Fund	HB	614	F
Mining regulations	HB	654	F
Underground mining, license revocation	HB	668	F
Underground mining, surface effects	HB	592	F
Drugs and Medicines			
Controlled substance	SB	368	F
Controlled substance	SB	209	F
Controlled substance	SB	232	F
Controlled substance	HB	724	F
Diagnostic pharmaceutical agents use by optometrists	HB	396	F
Narcotics traffic	HB	746	F
Prescription drugs, traffic in	SB	341	F
Electricians			
Certification of electrical inspectors	HB	501	F
	HB	729	F
Inspectors, regulation and certification of	HB	706	P

Energy			
Nuclear power plant construction	SR	28	P
Nuclear power plants	SB	286	F
Radioactive waste material excise	HB	838	P
Engineers and Surveyors			
Land surveyors for public works	SB	71	F
Public building	HB	801	F
Environment and Conservation			
Action to protect the environment	HB	820	F
Aerosol spray prohibition	SB	62	F
Energy usage reports	SB	265	F
Environmental protection litigation	HB	271	F
Fluorocarbons, petition for investigation	SR	31	P
Mine reclamation regulations	HB	490	F
Pest control	HB	62	F
Pollution abatement authority	SB	342	P
Pollution discharge, air and water quality	HB	458	F
Solar heating, solar heating advantage	HB	656	F
Wild rivers system	SB	309	P
Wildlife management areas	HB	469	F
Labor Standards	HB	127	F
Mining			
Coal and Clay	HB	654	F
Quarries and pits safety standard	HB	120	F
Permit applications and reclamation plans	HB	667	F
Reclamation plan approval	HB	697	P
Surface mine safety rules	HR	88	P

Oil and Gas			
Oil wells, distance between	SB	185	P
Physicians			
Life support measures, discontinuancy	HB	265	F
Prescription drugs, traffic in	SB	341	F
Pollution			
Ambient air and water quality	HB	458	F
Fluorocarbons, petition for investigation	SB	31	F
Safety			
Care centers, safety standards publication	HB	488	P
Sewage Systems			
Treatment plants, penalty for violation	HB	338	P
Waterways and Dams			
Pollution discharge	HB	458	F
Water treatment plants, penalty for violation	HB	338	P

Legislative Questionnaire

The second phase of the needs assessment was to conduct a survey of the representatives and senators of the Kentucky General Assembly. In order for the information to be useful, it was necessary to give all members a chance to respond and to obtain a reasonable response rate from the legislators. All the legislators were given a scientific and technical legislative questionnaire, which is included in Appendix A of this study. Of the 138 legislators, 65 returned the questionnaire, and there were 64 usable responses. The first question within the survey dealt basically with how the legislator obtains scientific and technical information on issues that have confronted him/her in the General Assembly. After discussing the question of what information sources should be included in the questionnaire with members of the Legislative Research Commission, legislators, and National Science Foundation project directors of other states, this researcher identified and included sixteen sources commonly used. The legislator was asked to circle a response ranging from a response of 5, meaning that this source is often used, to a response of 1, meaning that this source is seldom used. The second question dealt with why the legislator might choose one source of scientific and technical information over another source. Again, conferring with other individuals produced a list of attributes of such sources to be included in the questionnaire. The next six questions of the questionnaire were directed at whether the legislator was satisfied with the scientific and technical information he/she had received in the past, and what possible information might be helpful in the future. Question three asked if the legislator found it difficult to understand scientific and technical bills without going to other sources. Question four asked if the legislator had found that the Legislative Research Commission was able to anticipate which scientific and technical issues would become important and thoroughly research those issues before the general session. Question five asked if it would be helpful to have a list of university and private industry experts whom the legislator could contact concerning scientific and technical matters, or whether it would be more helpful to have an advisor within the Legislative Research Commission (LRC) do the contacting. Question six asked how satisfied, in general, the legislator was with the LRC regarding scientific and technical issues. Question seven asked the legislator if he/she believed that the Legislative Research Commission should hire additional scientific and technical specialists. Finally, question eight asked if the legislature was currently enacting the scientific and technical legislation needed in the state of Kentucky.

The good questionnaire response rate (46%) was partially due to interest from the legislators, but mostly due to concentrated efforts by members of the Legislative Research Commission to contact the legislators repeatedly and ask for their help concerning this issue. In comparison to other states that have conducted similar surveys, a 46% response rate seems to be good, and certainly high enough to utilize the statistical information with some accuracy. The answers to the legislative questionnaire are contained in Table 3 of this study. The answers to the first question concerned the legislators' use of various sources of information on scientific and technical issues. When the legislators' responses are analyzed, a definite pattern of sources being utilized by the members of the House and Senate develops. At least five sources were given a high usage rate. If a response of 4 or 5 is considered high, 3 is considered neutral, and 2 or 1 considered low or a negative response, then the source which got the highest usage response was committee hearings, which 74% of the legislators gave a high rating, indicating a high usage of committee hearings to get information concerning scientific and technical bills.

TABLE 3

Answers to Legislative Questionnaire

Question Number One: Legislators' Use of Various Sources

Source	Often Used 5		4		3		2		Seldom Used 1		No Response	
	N	%	N	%	N	%	N	%	N	%	N	%
A. Committee hearings	24	37	24	37	9	14	4	6	0	0	4	6
B. Legislative Research Commission	31	48	11	17	16	25	3	5	1	2	2	3
C. Private firms	3	5	6	9	9	14	16	25	19	30	11	17
D. Special interest groups	2	3	12	19	22	34	14	22	11	17	3	5
E. News media	7	11	14	22	16	25	17	25	8	12	2	3
F. Governor's staff	2	3	9	14	11	17	10	16	26	41	6	9
G. State agencies	5	8	19	30	21	33	9	14	5	8	5	8
H. Federal agencies	2	3	2	3	8	12	19	30	28	44	5	8
I. University faculty/staff	2	3	5	8	11	17	16	25	25	39	5	8
J. Other legislators	10	16	13	20	26	41	9	14	3	5	3	5
K. Personal knowledge	7	11	3	5	32	50	11	17	7	11	4	6
L. Floor debates	5	8	7	11	17	27	22	34	9	14	4	6
M. Personal outside sources	4	6	15	23	14	22	16	25	11	17	4	6
N. Professional journals	2	3	5	8	14	22	19	30	19	30	5	8
O. Other states	0	0	3	5	7	11	17	27	29	45	8	12
P. State library	0	0	0	0	5	8	6	9	40	63	13	20

Question Number Two: Why Legislators Use Sources:

Attribute	Very Important 5 N	%	4 N	%	3 N	%	2 N	%	Not Important 1 N	%	No Response 0 N	%
A. Identifies alternative solutions	32	50	12	19	9	14	2	3	1	2	8	13
B. Identifies both benefits and costs	33	52	18	28	8	13	0	0	1	2	4	6
C. Is easily accessible	22	34	22	34	14	22	2	3	0	0	4	6
D. Is thorough	25	39	20	31	15	23	0	0	0	0	4	6
E. Is reliable	35	55	13	20	7	11	4	6	0	0	5	8
F. Is convenient to use	26	41	14	22	18	28	1	2	0	0	5	8
G. Provides concise information	22	34	19	30	14	22	4	6	0	0	5	8
H. Is easy to read and understand without "translating"	26	41	13	20	13	20	6	9	0	0	6	9
I. Provides factual information	29	45	20	31	7	11	2	3	0	0	6	9
J. Provides objective information	24	38	18	28	10	16	2	3	1	2	9	14
K. Is politically reasonable	13	20	15	23	15	23	9	14	4	6	8	13

Question Number Three:
In the past have you found it difficult to understand scientific and technical bills without going to other sources?

Almost Always		Frequently		Sometimes		Almost Never		Never	
N	%	N	%	N	%	N	%	N	%
15	23	29	45	18	28	0	0	1	2

Question Number Four:
In the past have you found the LRC was able to anticipate which scientific and technical issues would become important and thoroughly research these issues?

Almost Always		Frequently		Sometimes		Almost Never		Never	
N	%	N	%	N	%	N	%	N	%
13	20	31	50	16	25	1	2	0	0

Question Number Five:
Would it be helpful to you to have a list of university and private industry experts whom you could contact on scientific and technical (S&T) matters, or would it be more helpful if an LRC S&T advisor did the contacting?

Own List and LRC		Own List		LRC		Undecided	
N	%	N	%	N	%	N	%
4	6	13	20	38	59	8	12

Question Number Six:
In general, how satisfied have you been with the LRC regarding science and technology issues?

Very Satisfied		Somewhat Satisfied		Neither Satisfied or Dissatisfied		Somewhat Dissatisfied		Very Dissatisfied	
N	%	N	%	N	%	N	%	N	%
31	48	23	36	6	9	1	2	1	2

Question Number Seven:
Do you believe the legislature should hire additional S&T specialists for the LRC?

Yes		No		Undecided		No Response	
N	%	N	%	N	%	N	%
9	14	18	28	33	52	4	6

Question Number Eight:
Is the legislature currently enacting the necessary scientific and technical legislation for the state?

Yes		No		Undecided		No Response	
N	%	N	%	N	%	N	%
21	33	3	5	32	50	8	12

The second highest source cited was the Legislative Research Commission, which received a positive rating of 65% by the legislators. This certainly is an indication that the Legislative Research Commission is fulfilling its task in the area of providing scientific and technical information to the legislators. Apparently they consider the information useful and are in fact using it as a source of information on scientific and technical issues. There is quite a drop in positive response from the legislators' answers from the committee hearings and Legislative Research Commission totals to other sources' totals. There were only three other sources that were given positive ratings higher than 30%. State agencies were given a positive rating, surprisingly, of 38%. Other legislators utilized as a source were given a positive rating of 36%. Finally, the news media was given a positive rating of 33%. It appears from these answers that the legislators overwhelmingly utilized committee hearings and the LRC to gain information on scientific and technical issues.

The answers to the first question also show that there were several sources which the legislators seldom use in considering scientific and technical issues. The least utilized, according to legislators' answers, were federal agencies, which received a negative rating of 74% in the survey. This is in contrast to state agencies, which did receive a fairly high positive rating of 38% as a source of scientific and technical information. Another source given fairly high negative ratings was the state library, with a negative rating of 72%. Also, other states as sources of information were given a high negative rating of 72%. Professional journals were given a high negative rating of 60%, and university faculty and staff were given a high negative rating of 64%. Private firms were given a negative rating of 55%, and the governor's staff was given a negative rating of 57%. It is not surprising that the legislators do not utilize the governor's staff or private firms as sources of information. It is somewhat surprising that the groups which specialize in providing scientific and technical information to legislators, i.e., special interest groups, were given a somewhat negative rating. Only 22% of the legislators gave them a favorable response, whereas 39% gave them a negative response, and 34% gave them a neutral response. This indicates that the use of special interest groups varies quite a bit; some legislators do rely upon them heavily, and others seldom use them.

Question number two addressed the problem of why legislators will use some sources more than others. The answers to question two are a little more difficult to interpret than those to the first question. All of the attributes as possible reasons why legislators might use certain sources of information were given a positive response with the exception of the last attribute. There were, however, certain attributes which received a higher rating than others which were given positive ratings. The attribute receiving the highest rating was "the source which identified both benefits and costs" of the legislation. This attribute received a positive rating of 80%. The second most important attribute rated by the legislators was that it was "reliable information"; this received a positive rating of 75%. The legislators also gave a high rating to the attribute "providing factual information." Other attributes which received very high ratings, and only slightly lower than the ones previously mentioned, are: identifies alternative solutions (69% positive rating); is easily accessible (68% positive rating); and is thorough (68% positive rating). Somewhat surprisingly the attribute "provides objective information" was given a somewhat lower rating of 66%. Either legislators do not consider objectivity important, or they don't see it as a problem in comparing information they receive from various sources. Also, the attribute "provides concise information" received a somewhat lower rating than the other positively rated attributes. Finally, perhaps because they would not want to

admit that political feasibility is important as an attribute, the last attribute, "is politically reasonable," was given a positive rating of only 43%, which is substantially lower than the other attributes. This perhaps is a reflection of the legislators' independence from purely political decisions regarding scientific and technical matters.

The answers to questions 3 through 8 present some fairly consistent opinions by the legislators, and also some surprises. Probably the most important of these questions is question number 6, which asks how satisfied the legislators have been with the Legislative Research Commission regarding scientific and technical issues. Since the legislators reported in question one that they use the LRC as a source of information concerning scientific and technical bills, question 6 was quite important. The response to question 6 gave a clear indication that the legislators are satisfied with the information being given them by the LRC. The responses to question 6 show that 84% of the legislators were at least somewhat satisfied or positively satisfied with the LRC regarding scientific and technical issues, while only 4% were at least somewhat dissatisfied with the LRC. This is quite a positive statement regarding the information being supplied by the LRC to the legislators.

Related to their answers concerning their satisfaction with the LRC was question 4, which asked whether they felt the LRC was able to anticipate which scientific and technical issues would become important and thoroughly research those issues before the General Assembly met. Seventy percent (70%) of the legislators responded positively, while only 2% responded negatively. This, again, is a clear indication that the legislators are satisfied with the ability of the LRC to anticipate and thoroughly research scientific issues, and apparently (from answers to question 6) do a good job in providing information on those issues.

Question 3 is somewhat related to 4 and 6 in that it asks if the legislators have found it difficult in the past to understand scientific and technical bills. Sixty-eight percent (68%) responded that they found it difficult to some extent to understand scientific and technical bills, while 2% said that they never found it difficult to understand scientific and technical bills. This probably indicates a problem some legislators are having in understanding scientific and technical bills; however, they seem to be pleased with the LRC's development of those bills, and possibly are not blaming the LRC for its inability to simplify the information any further. This may indicate that the members of the General Assembly simply accept the fact that it is naturally difficult to understand scientific and technical bills, and that they will have to deal with that as best they can. Thus it may be an unavoidable problem; similar statements have been found in surveys from other states regarding scientific and technical bills.

In answering question number 5, legislators indicated they would like to have the LRC keep a list of university and private industry experts who could be contacted to help discuss scientific and technical matters. Fifty-nine percent (59%) of the responding legislators indicated they would want the LRC to do this, while only 20% said they would like to have their own list. Of course, it would be easily possible to have a list provided by the LRC to individuals who wanted their own list, while the LRC could contact experts for other individuals who would rather have the LRC make the contact and assemble the necessary information. So, both of these could be accomplished with possibly the LRC producing the original list. The legislators do seem to feel that they are enacting the state's necessary scientific and technical legislation, since 33% responded yes and only 5% responded no. However, 50% were

undecided, which certainly indicates some indecision on the part of the legislators as a whole as to whether they are able to keep up with the scientific and technical legislation which is needed. However, only 14% of the respondents indicated that additional scientific and technical specialists should be hired for the LRC, while 28% said no more should be hired; and, again, 52% were undecided on this matter. Overall, these last two questions indicate the legislators are basically unsure of whether or not additional help is needed.

CHAPTER IV

THE EXPERIENCES OF OTHER STATES

At the present time forty-two states have applied for and received funding under the State Science, Engineering, and Technology program, which is sponsored by the National Science Foundation. Many of the states, especially the larger ones, will establish some form of science information mechanism or will seek to improve the current mechanism which provides information to the state legislatures. It has been very helpful to be able to work with members of other state legislatures who have explored the needs and possible mechanisms for improving the flow of such information within their states. One of the distinct advantages of being one of the last states involved in exploring the need for developing scientific and technical information for its legislative body is the opportunity to learn from other states' experiences. The exchange of information from other states has come primarily through conferences sponsored by the National Conference of State Legislatures. Also, the other states have provided written reports and information as they have completed their separate projects. The following is a brief summary of the experiences of several states which have already studied the science and technology needs within their state legislatures. Most of the information was gathered through written reports or oral contact with the person responsible for the National Science Foundation project for his particular state.

Nevada

Nevada, of all the states included in the SSET study, was most similar to the state of Kentucky in that it has a biennial legislature which meets for only sixty days. Also, like the state of Kentucky, Nevada has never had any science and technology staff, and its science and technology needs were defined in terms of the physical and natural sciences. Moreover, about 5% of Nevada's bills in the last legislature dealt with science and technology issues - very close to the percentage that was found in Kentucky. Also, most members of the legislature in Nevada's own study of its needs felt, as did Kentucky legislators, that its staff was able to handle the science and technology needs of the legislature. The science and technology issues which Nevada found to be most important were health, natural resources, energy, and environment, again very similar to the case in Kentucky. Nevada found that each legislator developed his/her own trusted source of science and technology information as well as relying upon his/her own staff, again a result similar to that of Kentucky. Nevada found in its study that legislators responded that any science and technology information made available must be easily accessible and very convenient for them to use, and typically they would only use one or two sources. All of these findings in the state of Nevada were remarkably similar to our questionnaire findings in Kentucky. In its summary report Nevada stated that its legislators felt they could get the science and technology information they needed, and did not see a need to copy some of the larger states and develop a full science and technology staff to advise the legislators. Some possible additional sources of information that were being studied were an advisory council, university expertise, a computerized information system, and giving sponsored research to universities. Overall, Nevada felt that even though they did not expend a great deal of money and time on scientific and technical issues, they were able to meet the demands of

the state and deal with the 5% of the bills that were of a technical nature. These findings were remarkably similar to the opinions expressed by the members of the Kentucky legislature.

Washington

In the state of Washington legislators responded to their needs analysis that they seriously doubted the need for any more science and technical staff. The legislators felt the need was for more help in translating technical material into everyday English. They also felt that there was a need for better anticipation of science and technology issues which would be important during the next legislative session. It should be noted that this need for better anticipation was not widely expressed by the Kentucky legislators. Also, the Washington legislators did not feel that a long list of experts would be useful to them, because they had developed their own source trusts and relied upon one or two people when they had questions concerning science and technology. This finding was somewhat similar to the Kentucky results, that one or two sources were all that were used by most legislators. The staff did not use a computerized system and felt that its cost and time of development made it prohibitive.

Oklahoma

The Oklahoma needs survey found that 91% of the legislators wanted additional science and technology information. They also found that 50% thought their work in the area of science and technology had been poor during the past legislative sessions. The recommendations being carried out in the state of Oklahoma, one of the first states involved in the National Science Foundation project, were to add: (1) university-sponsored interns for long-term studies; (2) university and industrial liaison individuals; (3) two additional science and technology staff to the legislative staff (there are currently none).

Minnesota

The Minnesota results concerning their science and technology needs and additional information sources were quite unusual in comparison to those of other states. Minnesota has begun offering workshops to get academic and industrial people to communicate better with members of the legislature. They have supported the use of graphics and displays to better communicate the problems of science and technology to the legislators. The Minnesota legislature felt the basic question was whether the science and technology staff should have (1) an educational function only, or (2) a bill-drafting function as well as an educational function. Most felt it should be a bill-drafting function in addition to an educational function. Minnesota found that the natural science museum could offer the legislators great assistance in providing scientific and technical information. They found that the primary problem with such information was that it was not provided easily enough or communicated well enough to be utilized by the members of the legislature. This finding again echoes what many other states have found - that this information has to be understandable, accessible, and easily utilized.

Virginia

The Virginia experience has been reported to be successful. The state of Virginia has fully funded an SSET project. The head of the current SSET project in Virginia reports that the state has learned these basic lessons: (1) data must be collected to support the position that the legislator was taking on a particular issue; (2) the legislators must be able to understand the data which is presented by the science and technology expert and be able to read that data in one to two paragraphs maximum. It is felt that it is critical that legislators not spend time thumbing through several pages of information to reach a conclusion; (3) a high percentage of the science and technology questions can be quickly answered by most experts without any additional work; this makes the use of a list of experts from universities and private sources quite useful, because many of these people can be contacted over the telephone and questions can be quickly answered without a lot of lengthy information-gathering and proposal-writing. This state's results indicate that the listing of university and private industry experts can be a successful method.

California

The California experience is unique, simply due to the size of the California legislature and its full-time staff. In 1978 the state of California had well over 150 legislative staff members in the science and technology area alone, in addition to 127 personal scientific staff members. Obviously the magnitude of the California legislature, which meets constantly, makes it an entirely different system than most states would experience. The state of California had funded a scientific and technical information program before the SSET began its current study of the needs of various states. The state of California found that as much as 50% of the bills presented to the legislature were of a scientific and technical nature. This reflects (1) that the percentage found in California is much higher than in the state of Kentucky, and (2) that their definition of science and technology is probably broader than that utilized by most other states. In the state of California the legislators rely heavily on their in-house expertise rather than going outside for information. The legislators in California wanted to increase their personal staff by adding science and technology experts without increasing the staff of the legislature as a whole. Instead, they felt that the governor should have an increased science and technology staff to look more thoroughly into those types of issues. Again, the state of California, by its magnitude and types of science and technology problems, is distinctly different from Kentucky and many other states.

Pennsylvania

The state of Pennsylvania has a truly unique program which provides the legislature with scientific and technical information. Its system is called the Legislative Office for Research Liaison, or LORL. LORL provides technical information for use by legislators and their staff primarily through faculty members at six universities. These faculty members voluntarily contribute their time and effort in researching issues which are initiated by the legislature. The LORL office offers assistance to legislators and their staff on

scientific and technical aspects of policy issues to facilitate their discussions and use of technical information in the decision-making process. The LORL office is funded by the House of Representatives and the National Science Foundation. The LORL resource persons include faculty members from Drexel University, Lincoln University, the University of Pennsylvania, the University of Pittsburgh, Temple University, and Pennsylvania State University. When a legislator has an inquiry concerning science or technology, the LORL staff logs in the request on a LORL inquiry log, a copy of which is included in Appendix C of this study, and the appropriate questions are forwarded to the six LORL universities for written responses. The current legislators and their staff apparently have been quite pleased with the LORL project, and it is truly an example of how universities can help the states in ways other than traditional teaching and research.

Hawaii

The state of Hawaii has a system somewhat similar to that of Pennsylvania. The staff of the University of Hawaii plays a vital role in providing the governor with scientific and technical information. The governor's office provides most of this information to the legislature. Such close interaction makes it fairly easy to maintain a centralized scientific and technical information system.

North Carolina

The state of North Carolina has a centralized mechanism for providing information concerning scientific and technical issues, a computerized technical information retrieval system and a staff which serves as the intermediary for interpreting information to the legislature. The state uses a data base supplied by NASA. The state agencies have many federal and local sources of data which are included in the system. However, more important scientific and technical projects are still assigned to committees for investigation, even though there is a centralized, computerized technical information system. This centralized computer system is unique to the state of North Carolina and is substantially aided by NASA's assistance.

CHAPTER V

ALTERNATIVE DESIGNS

The review of the experiences of other states and the specific needs in the state of Kentucky indicate that science information mechanisms should be designed to meet the specific needs of the particular state involved. Thus, it may be that features of one alternative model that might make it quite useful for one state would make it far less useful for other states. While the different basic models which have been proposed and utilized in other states should be considered, of primary importance are the particular needs of the state of Kentucky.

One model to be considered is that of a legislative science advisory council. Such councils have generally taken the form of a group of scientists from outside the legislature who assist the legislature with policy questions concerning science and technology. Members of the council usually are selected from the state's academic and research institutions as well as private institutions, and often serve without any compensation. This model has been proposed and attempted by such states as California and Utah. Such advisory councils have not always become a satisfactory method of providing scientific information to the legislators, however. Although many university faculty members, as well as members of private research institutions, feel that the information they possess and provide is easily understood by the legislators, this is often not the case. The problem, therefore, often becomes one of translating the provided information into usable information. In general, advisory councils have not met with great success. In California the Assembly Science Technology Advisory Council (ASTAC) is an ad hoc organization made up of eighteen scientists from state universities and research institutions. Due to conflicting schedules, assembling the members of ASTAC has often been a problem. Communication has often been one-way, with the council members educating staff members of the legislature. Often the council members have had little or no idea of how the legislature operates. Because of such difficulties, ASTAC is now inoperative. However, it may be reorganized with a different format at a later date. Hawaii and Massachusetts have also found that advisory councils are not particularly successful. They can be utilized as sounding boards for ideas, or ad hoc councils can be made up to handle specific problems. However, as standing organizations to provide scientific and technical information, they have not been particularly useful. The two primary problems that seem to exist with the advisory council model are: (1) inability of scientists to relate to the needs of the legislators and to translate their information and ideas into usable language, and (2) inability to provide enough time and service at the time it is needed by the legislature. In Kentucky this would be particularly critical since the General Assembly meets for a short period of time.

A second model of providing scientific information to the legislators would be to provide a list of external experts who would be available to provide information and resources when called upon. Such external information sources would most likely be made up of academic and research institution members. But other states have encountered problems with external sources. Their legislators simply did not utilize the external system, but rather one internal to the legislature. An external group which tries to establish a system to provide information to the legislators usually encounters the problem of getting the legislators to utilize their information instead of trust

sources. However, the Virginia experience was highly successful. Virginia found that a high percentage of scientific and technical questions can be answered easily and quickly by experts without any special preparation on their part. This makes the use of a list of external experts quite feasible, and the only critical question then becomes who should do the contacting in different situations. If the contact person is one internal to the legislative system, he/she has the advantage of being able to translate information from the external experts. Also, the internal source is able to contact many external experts or trust sources if necessary. The Virginia experience has proven that scientific questions can be answered quickly without a great deal of paper work or lengthy information-gathering and proposal-writing, as is the case in the Pennsylvania LORL project.

A third alternative would be to add full-time scientific and technical staff to the Legislative Research Commission. These would be specialists who more than likely would have doctorates in particular scientific and technical areas most relevant to legislation. However, only 14% of the legislators who responded to the legislative questionnaire felt that additional scientific and technical specialists should be hired for the LRC. Twice as many legislators responded that no more should be hired, and a majority (52%) of those responding indicated they were undecided. This may reflect the tendency of the legislature to utilize gubernatorial expertise in the area of science and technology, or the unwillingness to expand their own staff in a period of cost consciousness. One disadvantage of adding scientific and technical experts to the LRC staff would be that they may be inclined to use too much terminology specific to their own fields. Several states have encountered this problem; their legislators cannot translate the information provided to them. Another problem is that most such scientists have specialized in one or two particular areas. This would make them relatively useful in only a few of the scientific and technical problems which present themselves. Also, it would probably be a problem to familiarize the scientists with the political process inherent in the legislature.

Another model of providing scientific and technical information to the state legislature would be to utilize one of the LRC staff of researchers as a scientific and technical advisor. This person would be one who is experienced in dealing with scientific and technical bills and is also able to communicate with the scientific and technical community as well as the political community. Such a person could simply be designated a scientific and technical advisor and would have responsibility for the scientific and technical bills which come up before the legislature. This solution may be particularly feasible in Kentucky since, relative to the case in other states, the percentage of bills in the past two sessions dealing with scientific and technical matters has been small enough that one scientific advisor could handle the workload. This alternative enables the legislators to develop a new source trust within the LRC, and also enables one person within the Legislative Research Commission to develop the scientific expertise and knowledge to help the legislators more than if such bills are simply spread out among the various research staff members.

The state of Pennsylvania provides a model for providing scientific and technical information to the legislators through the facilities of the states's six universities. This model, called LORL, the Legislative Office for Research Liaison, currently serves the Pennsylanvia legislature. The model calls for a very good working relationship between the universities and the legislature, and a rather involved written proposal process. The university faculty members are asked to voluntarily contribute their time and talent

in researching issues which are presented to them by the legislature. Certainly the model has merits. It utilizies existing expertise without duplication, and provides the legislators with objective input. However, the model would present certain problems in Kentucky's LRC. The first problem would be translating information provided by the university faculty and researchers to the legislators. This translation process would have to be done by someone within the LRC. The second problem, one of particular consequence in the state of Kentucky, would be timing. Since the Kentucky General Assembly meets for such a short period of time, university faculty and researchers would be deluged with requests during this short period of time and more than likely would seldom be contacted for the rest of the two-year period. Finally, it is likely that the state of Pennsylvania has a university system that is more research-oriented and better funded for research programs then are Kentucky universities, which are more traditional "teaching" universities. This does not in any way imply that Kentucky's universities do not provide the same quality of education, but simply refers to a difference in priorities. Finally, Kentucky legislators may be uninterested in a system like LORL because a high turnover occurs in each new General Assembly; and experienced legislators would more than likely use their source trust for scientific and technical questions.

The last model to be considered is the Model Interstate Scientific and Technical Information Clearing House (MISTIC), established in 1975 to provide scientific and technical information concerning various issues to the states' legislators and their staffs. MISTIC has the ability to link state legislators with outside expertise, including federal agencies, universities, and private institutions, as well as other states. MISTIC also organizes seminars and briefings, publishes newsletters, and prepares issue briefs concerning scientific and technical issues. MISTIC is operated by the Office of Science and Technology of the National Conference of State Legislatures. Recently MISTIC has responded to information requests in areas such as solid waste management, highway de-icing salts, and the ozone layer. More information concerning MISTIC is provided in Appendix B of this report. It should be noted that in the Kentucky legislative questionnaire, legislators responded very unfavorably to the use of outside information sources on questions concerning science and technology. This may give an indication of their lack of knowledge of or willingness to contact and utilize outside sources. However, the MISTIC model certainly provides a future alternative which may gain acceptance with use.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

After assessing the needs of the state of Kentucky and reviewing the experiences of other states with regard to the legislative use of scientific and technical information, several conclusions can be reached. First, Kentucky's needs are perhaps not as great as those of other states. A relatively small percentage of the total bills presented during the regular sessions of the General Assembly concerns scientific and technical problems. This, coupled with the limits imposed by 60-day biennial sessions, makes Kentucky somewhat unique in its needs. The responses of the legislators to the legislative questionnaire indicate a very definite pattern. The legislators get most of their information concerning scientific and technical bills from committee hearings and the LRC. In the past the legislators have felt some difficulty in understanding scientific and technical bills; however, they have felt that the LRC was able to provide them with information, to anticipate which issues would become important, and to thoroughly research those issues for the General Assembly. A great percentage of the legislators who responded to the questionnaire felt that if outside expertise is to be utilized in the scientific and technical matters, then it should be obtained through the LRC.

It is recommended that when considering the alternative models which have been proposed and utilized by other states, a model somewhat unique to Kentucky be developed. To provide the legislators with external expertise in scientific and technical matters and yet make it a source which they will utilize and whose information they will be able to interpret, it is recommended that an internally-based system be developed. Since the legislators seem very comfortable and familiar with the LRC, it is recommended that a scientific and technical advisor be appointed within the LRC staff. Such an advisor would have the advantage of being politically knowledgeable and be able to develop his/her general expertise in the scientific and technical areas. Routing all scientific and technical bills to one advisor would enable that advisor to become more familiar with experts external to the staff and increase his/her own ability in the area.

The Virginia experience with utilizing external experts should be noted. Virginia found that if a list of external university and research experts is provided, many questions can be answered via the telephone, thus eliminating lengthy proposal-writing and information-gathering processes. A scientific and technical advisor within the LRC could put together such a list of experts and provide this list to those legislators who want to make the contacts themselves. The legislative questionnaire indicated that a small percentage would like to have their own list and thus have a source for answering scientific and technical questions. If the Virginia experience is an example of what may occur in Kentucky, many scientific and technical questions could be answered quickly via experts who are contacted by the scientific and technical advisor. Also, such an advisor could more easily put together ad hoc committees concerning scientific and technical matters when such committees are necessary. The advisor would have the advantage of previous knowledge of available experts qualified to answer specific scientific and technical matters which are more lengthy in nature.

This proposal really combines the model of an internal advisor and the model of providing a list of external experts. It could utilize the advan-

tages of both models. The internal advisor would be able to overcome the problem of translating scientific and technical information provided, and, by utilizing a list of external experts, could have a much broader base of knowledge than any one person from a particular scientific background. Certainly this person could contact external multi-state sources such as MISTIC when such contact is necessary. Also, such an advisor could keep a file of the issue briefs provided by organizations such as MISTIC and other states, and could make such information readily available to the legislators when it is necessary.

Therefore, it is recommended that the LRC in Kentucky appoint a staff member to be designated the scientific and technical advisor. This person would develop a list of external experts in various scientific and technical fields. The list would be provided to legislators who wanted to contact such experts directly, and would also be used by the advisor to contact experts when specific questions concerning scientific and technical matters were brought to the attention of the advisor. This advisor would not have the trouble that has plagued advisory councils, in that such a person would not arrange meetings between several individuals unless a unique situation occurred. The advisor would offer the specific advantage of his ability to translate scientific and technical information useful to the legislators. It is felt that such an advisor would be well utilized (which of course is critical to the success of any new information source), because the legislators already feel that the LRC is one of their best sources of scientific and technical information. Finally, it is possible that the scientific and technical advisor would not be an additional cost to the state or the LRC.

SCIENTIFIC AND TECHNOLOGICAL LEGISLATIVE QUESTIONNAIRE

1. Legislators obtain information from a variety of sources. We are interested in how you obtain Scientific and Technological (S & T) information on issues such as pest control, mining regulations, nuclear waste, wildlife management, etc.

Source	(Please circle your response) Often Used				Seldom Used
A. Committee hearings	5	4	3	2	1
B. Legislative Research Commission	5	4	3	2	1
C. Private firms	5	4	3	2	1
D. Special interest groups	5	4	3	2	1
E. News media	5	4	3	2	1
F. Governor's staff	5	4	3	2	1
G. State agencies	5	4	3	2	1
H. Federal agencies	5	4	3	2	1
I. University faculty / staff	5	4	3	2	1
J. Other legislators	5	4	3	2	1
K. Personal knowledge	5	4	3	2	1
L. Floor debates	5	4	3	2	1
M. Personal outside sources	5	4	3	2	1
N. Professional journals	5	4	3	2	1
O. Other states	5	4	3	2	1
P. State library	5	4	3	2	1
Q. Other (Explain)					

2. We would like to know why you choose some sources and not others. A list of attributes that such sources may have are listed below. Please indicate how important each attribute would be for future Scientific and Technical (S & T) issues.

Attribute	Very Important				Not Important
A. Identifies alternative solutions	5	4	3	2	1
B. Identifies both benefits and costs	5	4	3	2	1
C. Is easily accessible	5	4	3	2	1
D. Is thorough	5	4	3	2	1
E. Is reliable	5	4	3	2	1
F. Is convenient to use	5	4	3	2	1
G. Provides concise information	5	4	3	2	1
H. Is easy to read and understand without "translating"	5	4	3	2	1
I. Provides factual information	5	4	3	2	1
J. Provides objective information	5	4	3	2	1
K. Is politically reasonable	5	4	3	2	1
L. Other (Explain)					

(over)

3. In the past have you found it difficult to understand scientific and technical bills without going to other sources?

Almost Always Frequently Sometimes Almost Never Never

4. In the past have you found that the LRC was able to anticipate which scientific and technical issues would become important and thoroughly research those issues?

Almost Always Frequently Sometimes Almost Never Never

5. Would it be helpful to you to have a list of university and private industry experts who you could contact on scientific and technical (S & T) matters, or would it be more helpful if an LRC S & T advisor did the contacting?

Own List LRC Undecided

6. In general how satisfied have you been with the LRC regarding science and technology issues?

_____ Very satisfied
_____ Somewhat satisfied
_____ Neither satisfied or dissatisfied
_____ Somewhat dissatisfied
_____ Very dissatisfied

7. Do you believe the legislature should hire additional S & T specialists for the LRC?

Yes (Specify Areas _____) No Undecided

8. Is the legislature currently enacting the necessary scientific and technical legislation for the state?

Yes No Undecided
(Explain)

9. Comments (Optional)

Name _____

Return to Vic Hellard, Jr.
Room 300, State Capitol
Frankfort

Federal MISTIC Representatives:

Department of Transportation
Al B. Linhares/Norm Paulhus
Research and Development Policy
Analysis Division
TST-12
400 Seventh Street, N.W.
Washington, D.C. 20590
(202) 426-4208

Environmental Protection Agency
Sarah Kadec
Library Systems Branch
PM-213
Washington, D.C. 20460
(202) 755-0353

National Aeronautics and Space Administration
Ray Gilbert
Technology Utilization Office
Code KT
6th and Independence Sts., N.W.
Washington, D.C. 20546
(202) 755-3140

National Bureau of Standards
James Wyckoff
Coordination for State and Local Government
Affairs
Admin. A-402
Washington, D.C. 20234
(202) 921-3814

National Oceanic and Atmospheric
Administration
Robert R. Freeman
Environmental Science Information Center
6010 Executive Boulevard
Rockville, Maryland 20852
(301) 443-8137

National Science Foundation
George S. James
Communications Programs
1800 G. Street, N.W.
Washington, D.C. 20550
(202) 634-4333

Today's legislators increasingly deal with issues that involve science and technology, varying from energy, environmental management, toxic waste and genetic engineering to health care, weather modification and natural resources. Now in its third year of operation, the Model Interstate Scientific and Technical Information Clearinghouse (MISTIC) helps gather information on the scientific and technological aspects of those issues for state lawmakers and their staffs.

MISTIC links state legislatures with outside resources, including federal agencies, universities, private industry, professional societies and other states. The clearinghouse also communicates the needs of state legislatures for scientific and technical information to federal agencies, encouraging them to be more responsive to the states.

During the past year, MISTIC has responded to information requests in areas such as solid waste management, oil spill prevention and clean up, highway de-icing salts and fluorocarbons and the ozone layer. This year, using current research and information from the states and the federal government, MISTIC will begin identifying scientific and technical issues that legislatures may confront in the next few years.

Another MISTIC service is a monthly newsletter, **Science and Technology for the Legislatures.** Each newsletter reports on current legislative issues and the status of state scientific and technical activities. Along with current MISTIC studies, the publication covers new developments in legislative scientific and technical capacity building, and reviews selected reports from state and federal government.

MISTIC is operated by the Office of Science and Technology of the National Conference of State Legislatures. It receives financial support from five federal agencies: Department of Transportation, Environmental Protection Agency, National Aeronautics and Space Administration, National Bureau of Standards and the National Oceanic and Atmospheric Administration, and administrative support from the Intergovernmental Science and Public Technology Division of the National Science Foundation.

MISTIC Services

— Respond to requests from state legislatures for scientific and technical information and assistance

— Link legislatures to outside resources

— Organize seminars and briefings

— Publish a monthly newsletter

— Prepare issue briefs

— Identify future scientific and technical issues

NCSL MISTIC Contact

Keith E. Jackson, MISTIC Coordinator
National Conference of State Legislatures
Office of Science and Technology
1405 Curtis Street, Suite 2300
Denver, Colorado 80202
(303) 623-6600

Response time to MISTIC requests varies from one to two weeks according to the subject and extent of the request.

APPENDIX C

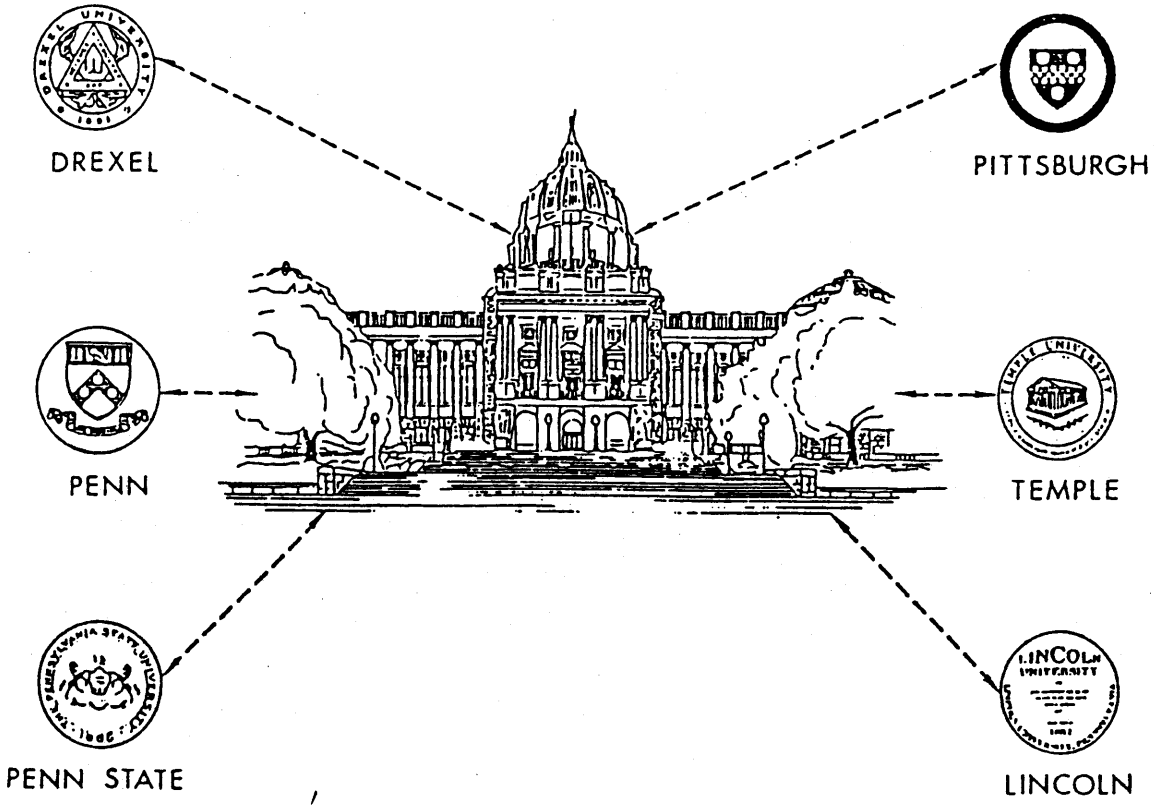
LEGISLATIVE OFFICE FOR RESEARCH LIAISON

LORL

HOUSE OF REPRESENTATIVES
COMMONWEALTH OF PENNSYLVANIA

SIGMUND A. SMITH
EXECUTIVE DIRECTOR
ROOM 628, MAIN CAPITOL
HARRISBURG, PENNSYLVANIA 17120
(717) 787-8948

L.O.R.L. provides technical information for use by legislators and their staff primarily through the efforts of faculty members at six of the Commonwealth's universities who voluntarily contribute their time and talent in researching issues/problems initiated in the legislature.



LEGISLATIVE OFFICE FOR RESEARCH LIAISON

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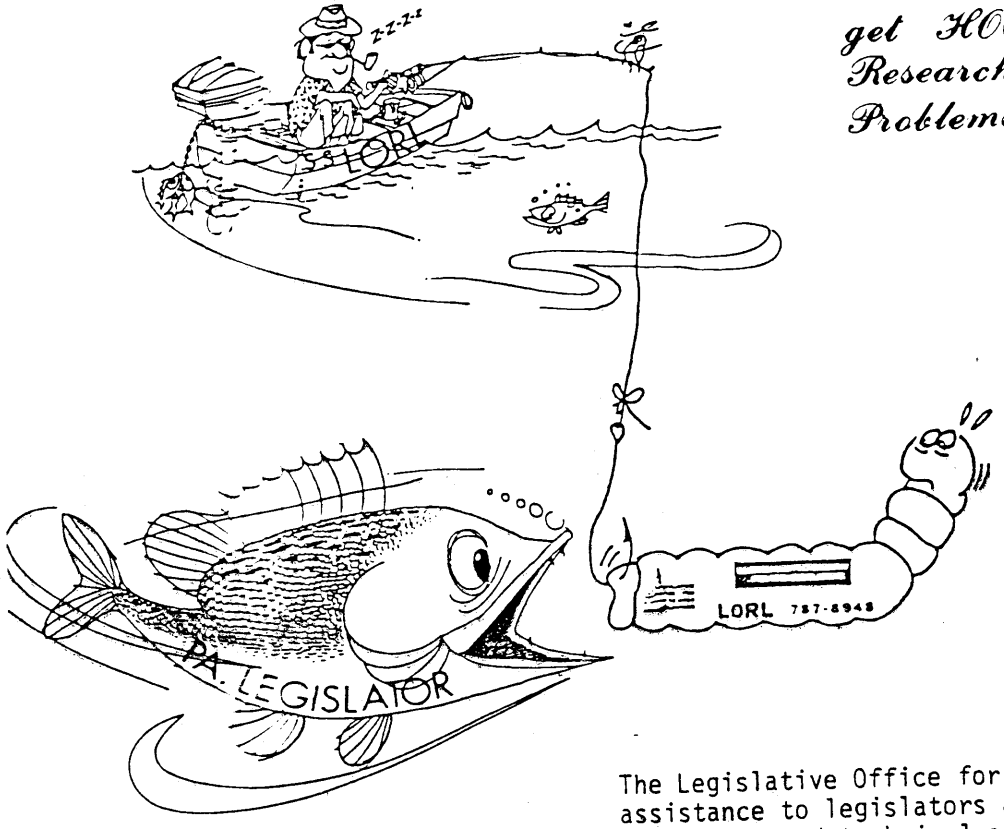

get HOOKED on **LORL!**
Research on Issues and Problems initiated by You.

The Legislative Office for Research Liaison offers assistance to legislators and legislative staff on scientific and technical aspects of policy issues to facilitate their discussions and use of technical information in the decision-making process. While the LORL office is funded by the House of Representatives and the National Science Foundation, key LORL resource persons include faculty members from Drexel University, Lincoln University, Penn State University, Temple University, University of Pennsylvania, and the University of Pittsburgh.

If you desire technical information on any issue/problem in the life, physical or social sciences, contact the LORL office.

Ask LORL to assist you. WALK IN room 628

CALL 787-8948

WRITE sig smith

LEGISLATIVE OFFICE FOR RESEARCH LIAISON

LORL

HOUSE OF REPRESENTATIVES
COMMONWEALTH OF PENNSYLVANIA

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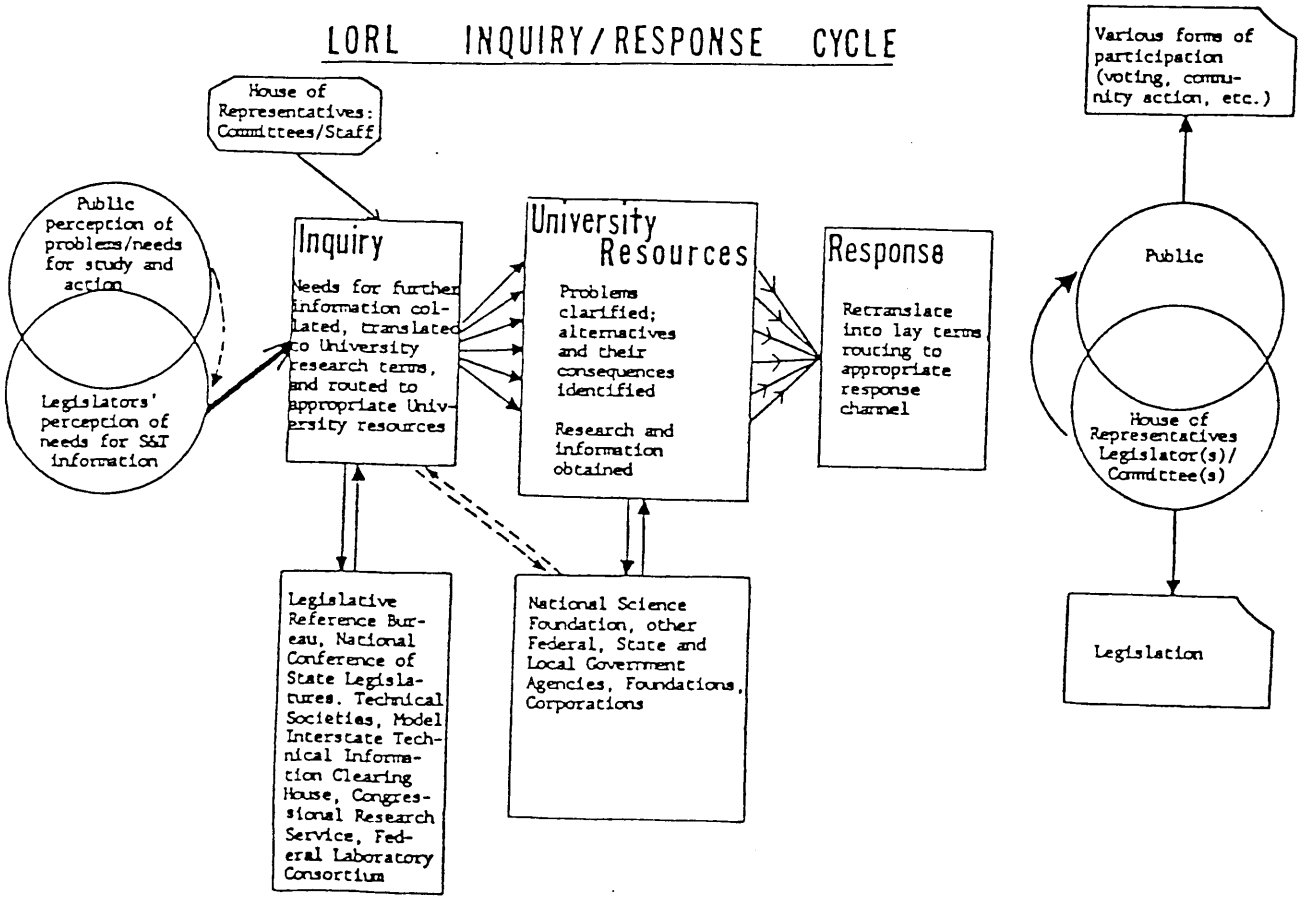
EXECUTIVE DIRECTOR
ROOM 628, MAIN CAPITOL
HARRISBURG, PENNSYLVANIA 17120
(717) 787-8948

HOW L.O.R.L. OPERATES The diagram below shows the entire flow of information from the initiation of a technical inquiry through the response to that inquiry. Feel free to discuss how L.O.R.L. operates with any member in the L.O.R.L. office.



LEGISLATIVE OFFICE FOR RESEARCH LIAISON

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HARRISBURG, PENNSYLVANIA 17120
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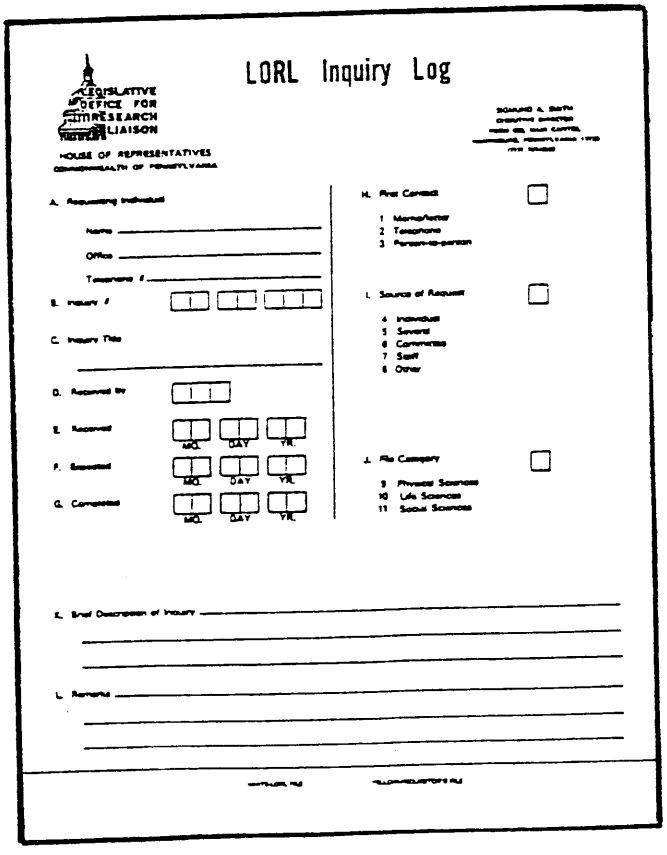
A Legislator's Inquiry is logged by LORL's staff and the research process begins immediately.....

and .....

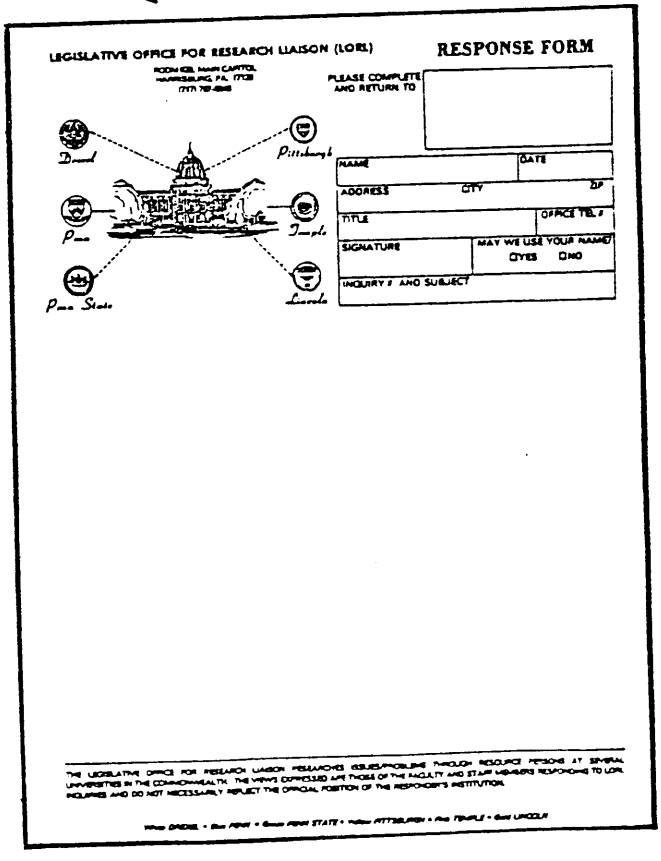
appropriate question(s) are forwarded to six LORL universities for written Response(s) to the Legislator's inquiry.



LORL Inquiry Log

LEGISLATIVE OFFICE FOR RESEARCH LIAISON
HOUSE OF REPRESENTATIVES
COMMONWEALTH OF PENNSYLVANIA

A. Requesting Individual
Name
Office
Telephone #
B. Inquiry #
C. Inquiry Title
D. Assigned By
E. Assigned MO. DAY YR.
F. Completed MO. DAY YR.
G. Completed MO. DAY YR.
H. First Contact
1 Mail/letter
2 Telephone
3 Personal-in-person
I. Source of Request
4 Individual
5 Several
6 Committee
7 Staff
8 Other
J. For Company
9 Physical Sciences
10 Life Sciences
11 Social Sciences
K. Brief Description of Inquiry
L. Remarks



LEGISLATIVE OFFICE FOR RESEARCH LIAISON (LORL)
RESPONSE FORM
PLEASE COMPLETE AND RETURN TO
NAME
DATE
ADDRESS
CITY
ZIP
TITLE
OFFICE TEL. #
SIGNATURE
MAY WE USE YOUR NAME? ☐YES ☐NO
INQUIRY # AND SUBJECT
Drexel
Pittsburgh
Penn
Temple
Penn State
Lincoln
THE LEGISLATIVE OFFICE FOR RESEARCH LIAISON RESEARCHES ISSUES/PROBLEMS THROUGH RESOURCE PERSONS AT SEVERAL UNIVERSITIES IN THE COMMONWEALTH. THE VIEWS EXPRESSED ARE THOSE OF THE FACULTY AND STAFF MEMBERS RESPONDING TO LORL INQUIRIES AND DO NOT NECESSARILY REFLECT THE OFFICIAL POSITION OF THE RESPONDER'S INSTITUTION.