

# Information Challenge and Improvement of Information Services (\*)

*Jacques Valls\*\**

## 1. INTRODUCTION

It is a great pleasure for me to be with you today, a very special feeling because as you know my Institution, A.I.T. was founded right here at Chulalongkorn University twenty years ago. It is also an honor for the "farang" I am to be trusted and invited by my Thai colleagues in such a friendly way.

I am fully aware of the difficulty for an European to advise usefully his Asian Colleagues on how to improve their Information facilities. Coming from the Western developed countries where the conditions are so different, the Western Information Scientist will have to understand and adapt to local culture and conditions if he wants to make useful relevant contributions. That is not easy to achieve and requires many years of patient devoted efforts.

I do not pretend to have reached that stage yet. What I present today is the result of the experience I have gained in working for 6 years in developing countries, mostly in Asia, following 15 years of work in Information Services in France, with an initial career and studies in Chemical Engineering.

I wish to underline here that my basic training and my early professional life were not as Information Scientist, but as a Chemical Engineer. It is only later on that I switched to Information. This is important to understand the ideas and views I am going to present. For many years, I have been a user of information before becoming a provider of information, and I have never forgotten my user's needs as an Engineer. That is why you will notice throughout my lecture my deep concern about the repackaging and the dissemination of information, about the dynamic role librarians and information specialists must try to have in transferring information to the users in the form best suited to meet their real requirements. All such ideas are consequences of my background : an Engineer turned into an Information Specialist.

I cannot in the short time fixed for my talk give you a comprehensive review of all the aspects and trends in the Information field. I shall limit myself to a few facts, beliefs and ideas deriving from my knowledge and from my own experience.

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(\*) Lecture presented at the University of Chulalongkorn on July 10, 1980.

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## 2. FACTS

### 2.1 The Situation

The basic fact behind the present situation and trends in the Information field is what has been called: "the Information Explosion", that is to say the considerable amount of existing recorded informations and its exponential growth rate. Two reliable studies made in recent years independently by the Chemical Abstracts Service and by the OECD lead to the same conclusion; the volume of informations is increasing by +13% per year, which means that the total amount of information in the world *doubles every 7 or 8 years!*

Figure 1 illustrates that phenomenon in the case of the well-known "Chemical Abstracts". Even if there is an "Information Pollution" that is to say many useless papers which should have been better not published, the core of important informations does increase exponentially.

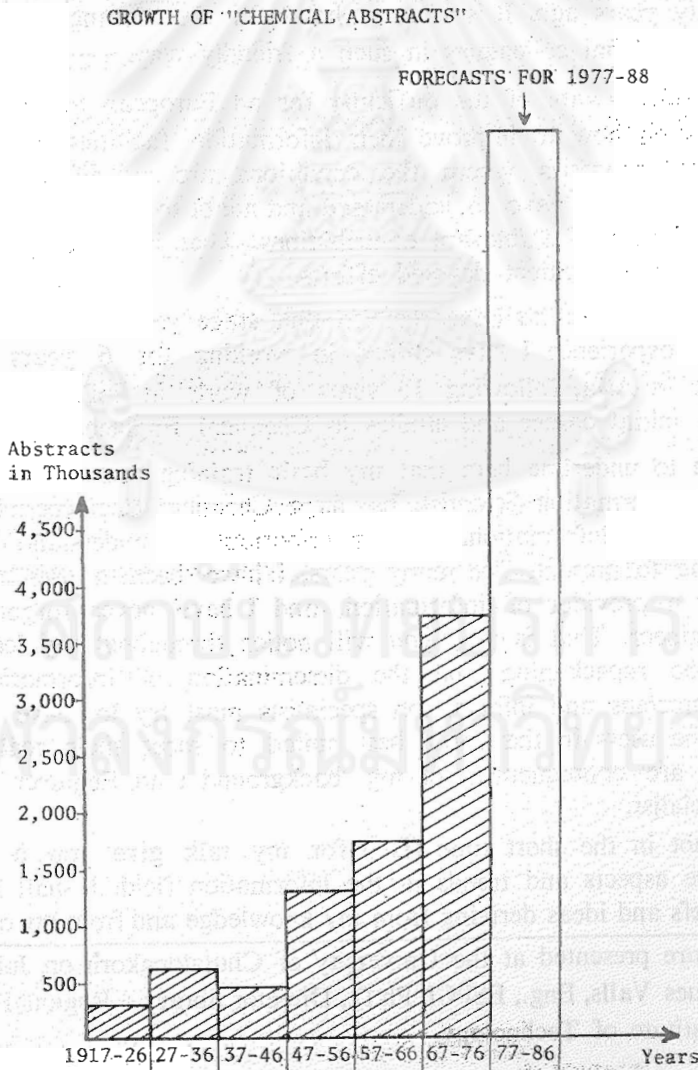


Figure No.1

That really fantastic growth rate has dramatic consequences both for the Information Centers and for the users. Providing information for the first, acquiring information for the second have become extremely difficult operations.

There are two different ways of viewing that Information problem:

Some people will say—why be informed? and if the “Information Explosion” creates so many problems just let us ignore it. An attitude similar to the ostrich which buries its head into the sand not to see the coming danger, and believing that because it does not see the danger this does not exist any longer!

The other approach is to be fully aware of the value and necessity of Information and therefore to act vigorously to cope with a difficult situation, to face the challenge of the “Information Explosion”!

To choose between those two approaches, we must first answer a fundamental question:

## 2.2 *Is Information really important?*

And to find the answer, I shall put another question:

*What is information?*

Available Informations are in fact the records of the knowledge, results, data, experience mankind has been gathering for centuries and is still gathering at the fantastic exponential growth rate mentioned earlier.

Therefore, what does it mean to ignore Information? It means very clearly running an equally exponentially increasing risk of duplicating what already exists, of not benefiting from already acquired knowledge, of in fact “reinventing the wheel”! That risk no one can afford it. It is too costly!

Let me give you a few examples:

— In a pharmaceutical research center, the decision was taken to prepare a new chemical compound thought to be active as a hypotensive drug. No systematic bibliographic search was done prior to starting the research. The chemical compound was made through a lengthy multistep synthesis — it was tested on laboratory animals and found active. At that point in view of taking a patent, a systematic bibliographic search was done...this led to the discovery that this chemical compound was already known and patented. The research had therefore to be abandoned after several months hard work and a loss of about 200,000 dollars. This could have been avoided if the search for information had been done prior to starting the research.

— During the American space program (Appolo project), it was necessary to test the resistance to pressure of tanks made with titanium. The pressure test was done on 20 tanks using methanol. Two of the tank failed in test. It was then found

out by looking in the published Information that methanol induced stress corrosion in titanium. The 20 tanks were damaged and had to be thrown away -- at a loss of \$ 1,5 millions. This could have been avoided by a 15 minutes search in Chemical Abstracts, which enables to detect papers describing "The stress corrosion of titanium in the presence of methanol".

Without securing proper Information, we will witness more and more often considerable wastes in money, time and efforts. This is totally unacceptable in any country but especially for developing countries which have insufficient means and so many priorities!

In addition, it must be reminded here that a little thinking in bringing together some pieces of available information can be very often a powerful source of ideas for research and development (2).

There is therefore no doubt that Information is and will be more and more a vital resource (\*) (5).

Of the two approaches I mentioned earlier the first one ignoring Information would lead to "professional suicide". We have, in fact, no choice if we wish to be constructive--the only way is to face the challenge and however difficult attempt to have a decent access to Information.

Let us then examine briefly what are the consequences of the "Information Explosion" and what we can do about it.

### 2.3 *The Consequences of the "Information Explosion" for the Information Centers and for the users.*

In trying desperately to cope with the many problems created by the present situation Information Centers have had to drastically modify their information handling techniques, their working methods and even their function and organization. As for the users, they also have been forced to change their approach to acquiring information.

*2.3.1 New more efficient techniques for recording, retrieving and disseminating information had to be devised and used.* The manual or semi-manual techniques previously used could no longer alone cope with the mass of

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(\*) The vital role of Information as a resource has been recently underlined in a rather spectacular manner by a group of specialists from the Aspen Institute for Humanistic studies who, in a policy paper on Human Requirements wrote: "A-pre industrial society is essentially one based upon Raw Materials. An industrial society is organized primarily around Energy and the use of Energy in the productivity of goods. A post-industrial society is organized around Information and utilization of Information as a way guiding the society."

informations to be handled now and had to be complemented or replaced by computer-based methods and by telecommunication techniques. Storage and dissemination of information have required using more and more sophisticated reprography and microphotography equipments.

2.3.2 *A second Consequences is the vital necessity for Information Centers to cooperate among themselves and to share their information resources at national, regional and international levels.* No one single Center, even the largest ones, can hope to handle alone the total mass of information now available and to be generated in the future. That means Information Centers must share the work to be done and avoid duplication of efforts by efficient coordination of their activities. They must become interdependent, share their resources and responsibilities.

2.3.3 *A third consequence applies to the human beings involved in the transfer of information process : the information specialists and the users.* Today, the librarians and information officers who have to use new sophisticated methods and who have to cooperate at the international level need to be highly qualified persons. The cliché of the little qualified librarian painfully scribbling on bits of paper with a pen is no longer acceptable. His profession has become a very difficult one, requiring quite advanced knowledge in many fields. This fact raises two problems :

a) *The Training* of information manpower which must be adequate and provided to a sufficiently large number of people.

b) *The professional status* of librarian and documentalists which must be much higher than it is now in many countries. If we wish to have good people with high qualifications, and they are now badly needed, it is necessary that they should be well paid and well considered. We must not see any more what was so frequent in the past : assigning to libraries "left over" staff found not to be efficient in other jobs.

As for the *Users of Information*, they have also to adapt to an entirely new situation. In the past, the user could keep himself fairly well informed just by reading a limited number of journals and books. Today, that is no longer possible because the amount of information published in his own field is far too considerable. The user, if he wishes to be kept well informed has to rely on Information Centers to provide him with retrospective literature searches, selective dissemination of information (for the recently published information), and copies of original documents.

Now to make use of the Information Centers Services, the user has to know of their existence, of what can be provided and at least roughly how it is provided. This means that a *real training of users* has to be undertaken. It is very important and if not provided will widen the gap between users and Information

Centers, leading to a paradoxical, and unacceptable situation where powerful information tools will exist in information Centers and be little or even not at all used.

2.3.4 *The very structure and functions of Information Centers are greatly influenced by the situation they have now to face.* Many of the new problems they have to solve and the fact that users are today more and more dependant on Information Centers have given a very strong emphasis to their analysis, processing and dissemination functions, to their ability to repackage the information they acquire and store, and provide it to the users "tailor-made" to their real needs.

At this point, I would like to raise the question :

*What is an Information Center ?*

I believe it is not merely a Terminology problem but a fundamental matter to clarify before going any further.

So many names are given today, to "services which provide information", Library, Documentation Center, Information Center, "Reference Center, Analysis Center, Clearing-House (much in fashion just now in the U.N. organizations), etc." That multiplicity of names has introduced much confusion as different people but different meanings under each one of those denominations. Many years back only one name was prevailing : Library, Why did so many new names appear? In my opinion, the explanation is that Libraries, for a number of reasons, have not been able to adapt to a new situation. They have given increasing emphasis to their acquisition and storage functions and have not developed enough their repackaging and dissemination functions. We then witnessed the creation of new types of services such as Documentation or Information Centers which focused their activities on the repackaging and dissemination activities increasingly needed and insufficiently carried out by Libraries. That very unfortunate evolution of the role of Libraries seems to have been accepted and endorsed even by International Organizations. For instance, the UNFPA describes libraries as follows :

"A Library is the *solified* memory of a society. It is a collection of materials... which have been arranged or indexed in some fashion easy retrieval of both the the physical object and its intellectual content. It is generally a comparatively *passive instrument* responding for materials or information, *but not issuing information on its own initiative*".

I personally strongly object to such a definition. Even if many libraries have become a rather "passive instrument", that is not in my opinion what in fact they should be, and I know that many librarians do deeply resent being considered only as "book-keepers"! Acquiring and storing treasures of information is just like hoarding gold in a chest and burying it, it is a treasure alright, but totally unproductive, therefore, useless. To be really efficient, useful, a library must play a dynamic role in the transfer of information from the sources to where it is needed.

It is my deeply rooted belief that a Center in charge of providing information – call it what you like – must perform all five following basic functions :

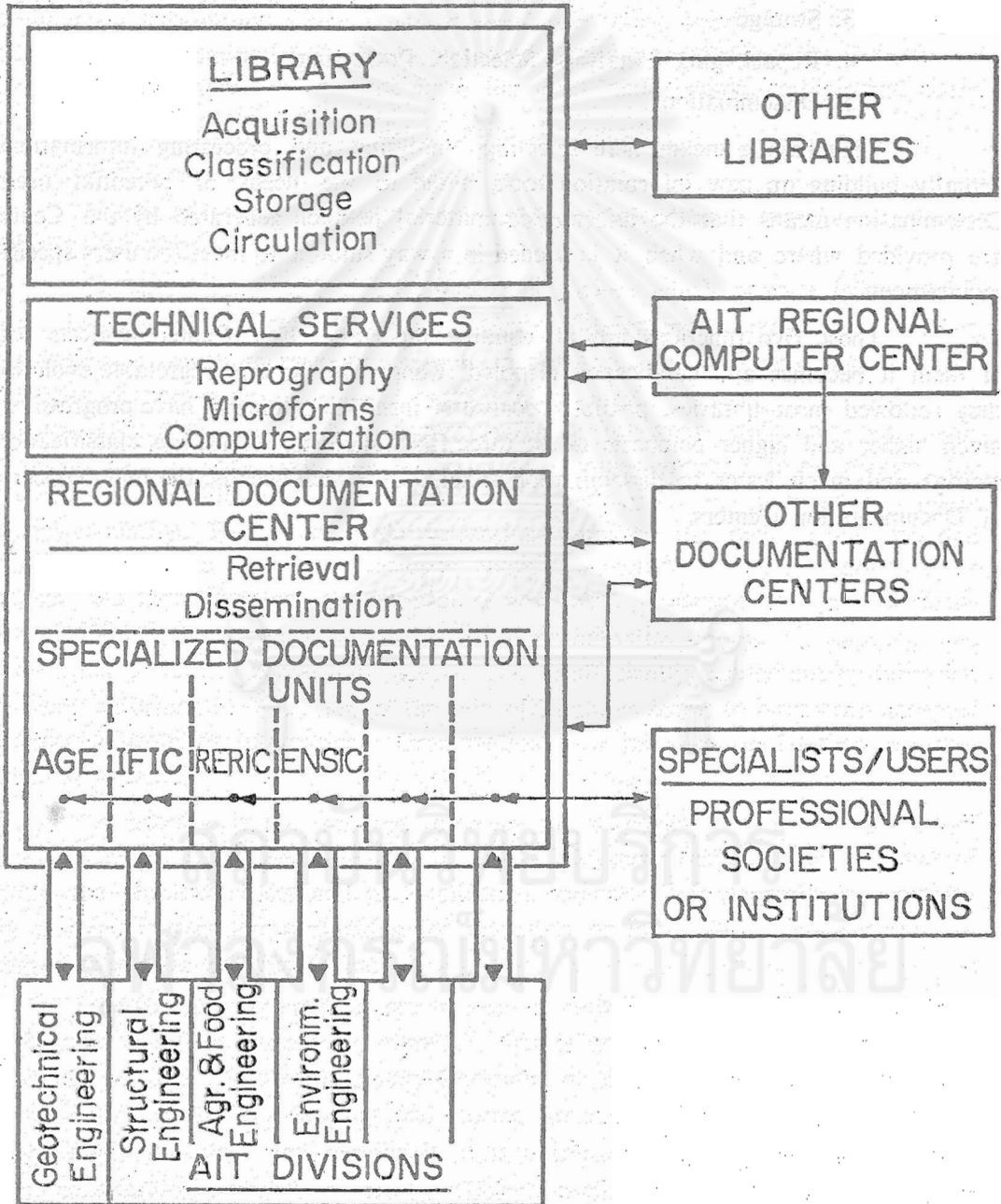
1. Acquisition
2. Classification
3. Storage
4. Repackaging (Analysis, Selection, Processing)
5. Dissemination

Repackaging means here selecting, analysing and processing informations, actually building up new information tools suited to the needs of potential users. Dissemination means that the information material held or generated by the Center are provided where and when it is needed in a way suitable to meet the users specific requirements.

Those five functions are all equally important. If a Center neglects any of them it becomes an “handicaped, crippled” Center. In the very regrettable evolution they followed most libraries, possibly because of insufficient means, have progressively given higher and higher emphasis to the three first functions, acquisition, classification, storage and much lesser to dissemination functions – which became the main concerns of Documentation Centers.

# ORGANIZATION DIAGRAM OF AIT INFORMATION CENTER

## AIT INFORMATION CENTER





If that is the present situation, the Library with its extensive collections of documents, it acquires and stores, could be compared to the trunk of a human body rather static but with the fundamental organs, and the Documentation Center would be the arms and legs which enable the body to move about and be active. Now one does not separate trunk and limbs, they are all necessary part of the same body and must work under the same head and brains. If it is not so, we do have an handicapped structure, not fully efficient.

In other words, I believe one cannot and must not separate what are called now the Library functions and the Documentation functions. They must be components of the same Center, housed together in the same building, under the same head supervisor. The treasures held in a Library will be insufficiently used and to a large extent wasted, if not properly disseminated and a Documentation Center without a good Library would be as efficient as a man without a backbone !

The diagram on page 5, shows how we are tried at AIT to implement those ideas.

Now let us come back to the analysis of the present situation of Information. The difficulties encountered by the Information Centers and their subsequent transformations are valid for all Centers worldwide, but they are, of course, considerably more dramatic in developing countries, which have both insufficient means and greater information requirements. Therefore, let us discuss here more specifically :

*2.4 The problems of Information Centers in Developing Countries* (1), those problems are so many and so variable from one country to another that I shall not attempt to be exhaustive but only list some of the most important I know of.

*2.4.1 Material Problems*—A first group of difficulties are the inability of Information Centers to acquire the tools they need :

- Acquisitions of information sources are insufficient because acquisition budgets are too low. This is further aggravated for certain countries by restrictions on foreign currency availability.

- Modern equipment, photocopying machines, microfilm equipment, computers are dramatically lacking.

- Communication means are totally inadequate and seriously hinders the flow of information. Among the obstacles figure, high cost of air mailing, prohibitive costs of telecommunications, scarcetelex facilities, restrictive customs regulations, variety of languages used, etc...

*2.4.2 Human Problems* - Another group of problems are linked to the various categories of human beings involved in the transfer of Information.

For most decision-makers and for many users, there is a very serious lack of awareness of the importance of information for the country's development process. As a consequence, the status of librarians and information officers is low and so are their salaries. The lack of interest of potential users results in an insufficient utilization of already existing information facilities.

At the level of Information Centers, there is a serious shortage of qualified manpower. But in addition, there is a lack of cooperation which leads to duplication of efforts and prevents a much needed sharing of resources. Linked to this, the way of thinking of many information people is not well adapted to the present situation. Many still believe in a static role at the time where a dynamic role in transferring information has become vital. Vital in more than a way :

Information specialists in developing countries have to meet the information needs not only of their government officials, scientists, engineers, professors, doctors, manufacturers, etc... but also of the vast majority of their population, little educated or even illiterate rural people ! To achieve this, they have to devise new ways of transferring informations through extension workers. To carry out that job, they cannot expect much help from developed countries, they must do it, and *do it practically alone.*

In addition the information generated in developed countries is quite often *not relevant* to Third World situations, Real "information gaps" exist for developing countries in many areas and their Information Centers have the responsibility to do something about it and generate the information tools which are missing.

Linked to the above mentioned problems is the language question. The many local languages used in developing countries are obstacles to the transfer of relevant information from one country to another and within a country to the vast majority of people who only know their own dialect. Translation facilities are badly needed and under the responsibility of Information Centers.

With so many existing problems and obstacles, what can be done for improving the efficiency of Information Centers in developing countries.

### **3. IMPROVING THE EFFICIENCY OF INFORMATION CENTERS IN DEVELOPING COUNTRIES**

Many different types of actions are needed to develop those Information Centers and make them truly efficient. Some are long term actions, others are immediately applicable (1).

3.1 *Long term action*, will mainly aim at "more money for Information activities". If we take a look at the problems previously listed, it can be seen that for many of them, the answer is exactly that: "not enough money" be it for acquisitions of documents or of equipments, for communicating, for paying qualified manpower, etc...

Now from where can that money come from? International funding agencies do provide some, but limited in quantity and duration. It is mostly "seed money" for starting something or for constructing a building or purchasing some piece of equipments or training scholarships or for some projects limited in scope and in time. It is never for real permanent operational budgets. The bulks of the Information facilities budgets are provided by the Governments. Therefore, it is the decision-makers in a country who can decide to invest or not increasing funds into their Information Centers. That is why the unawareness of the importance of Information found in most decision-makers is truly dramatic. A long term action will be to convince decision-makers that their country has a vital need for an efficient Information system, to include it in their National Development Plan with sufficient means, linked of course, to the country's own global resources. We must come to a situation where decision-makers will consider funding of Information facilities as an important investment just as investments are made currently in industry, transportation infrastructures, energy producing units, irrigation, etc...

For this, users of information could help considerably. Unfortunately as said before, many potential users do not use enough their Information Centers, either because they are unaware of the risks they are running in not securing relevant information for their work or because they are frustrated when using inadequate Information Centers. These users, most of the time, consider that the problems of Information Centers are not their business, and leave the poor librarians or information officers fight their battle alone. In fact, having really efficient Information facilities in their own country ought to be a major concern for the users, especially if they are dissatisfied with the existing ones. Users ought to be the first to request from their Government the setting up of a decent, useful Information Systems in the country.

Another long term action is the training of the highly qualified manpower needed today. The quality and efficiency of information Centers will increase significantly when they will have sufficient numbers of qualified staff.

Additional training facilities are badly needed. Funding agencies can undoubtedly help much in that type of activity, but the cooperation of local Governments is indispensable, it is useless to train highly qualified staff, if afterwards they have a low status and low salaries. If so, they will not stay in their country's

Information Centers, especially the best ones who will easily find better paid and considered jobs elsewhere. There again, is a question of "money for information". Besides immediate, short-term actions, the real training of Users requires long term actions. The Users' training must start when he is a young child and he must right from the start be taught that information, answers to questions, are to be found in books. Then throughout all his studies, undergraduate and post-graduate, searching for Information, making use of information facilities must be an integrated part of his study programme. In other words, Information Science must be introduced in the programmes of studies and in a truly practical manner. Then only will we see large numbers of real users, who will have acquired the "reflex" of using currently Information facilities, and of considering acquiring information as a normal, obvious part of their activities.

Long term actions are indispensable, vital but they are always a little discouraging to consider because of their complexity and length. Luckily we can find some comfort in realising that there are quite a number of short term actions we can undertake among information people, without much external support, which could lead to significant improvements.

*3.2 Short term actions;* the basic idea behind such short term actions is "Let us make better use of existing Information facilities as they are even if very inadequate. Let us optimize what we already have, while we are trying to have more".

There are many types of short term actions we can undertake if we want, which would lead to a far more efficient utilization of existing Information resources, and even pave the way for some of the long term actions.

The keyword for all short term action, I am suggesting is "sharing of resources". We do not have enough but each one has something and partly different. If we share whatever we have in collections, in manpower, equipment and experience, we shall collectively have a lot more. Let me give a few examples of what could be done or is being done.

#### *3.2.1 Increasing availability of existing documents and resources (1, 4).*

One thing that obviously could and can be done is to make the collections existing in each Information Center in the region more easily available to all Information Centers.

The prerequisite for being able to do so is to undertake inventories of the Centers' holdings at national and regional levels, that is to say making and updating Union Lists of Serials and Union Catalogues.

A good example is the "Union List of Serials in Thailand" being now completed with the cooperation of the main libraries in Bangkok and AIT as

coordinator. Later on the whole operation which has to be expanded and continuously updated will be handed over to Chulalongkorn's Central Library activity as coordinator.

Knowing through such inventories what are the existing resources enables to make better use of them. This implies that Information Centers will set up efficient mechanisms to help one another by interlibrary loans, exchanges of documents, procurement of copies of documents (hard copies or microforms), translations, etc.

Another possible advantage, rarely used of having resources inventories could be to allow coordinated acquisitions policies, at least for Centers located in a given limited area.

### *3.2.2 Improving methods for retrieving Information (4)*

As said before, spectacular charges depend on the success of the long term actions described under 3.1. I shall only mention here some activities possible on a short term basis with limited means.

Feasibility studies, pilot projects aiming at devising or evaluating methods to access Information Sources more efficiently are of great value. Some of these are possible with limited means providing they are undertaken collectively by a group of Information Centers with sharing of the work to be done.

Such ventures can most of the time benefit from some financial support from funding agencies (such as UNESCO or IDRC).

To illustrate that type of activity, I shall mention here a two year feasibility study undertaken by the Asian Institute of Technology and endorsed by CONSAL, to evaluate the possibilities to access in South East Asia, the large computerized data-bases produced in the West. In that experiment, selective dissemination of information (SDI) services (both standard and personalized profiles) are offered at low nominal charges to users in South East Asia. After two years, the experiment will be carefully evaluated in terms of costs, relevance of the information, communication delays, etc... It is worthwhile to note here that this rather ambitious project can be carried out with very limited means.

AIT was able to acquire for two years free of charge data-bases such as Science Citation Index, Chemical Abstracts, NTIS, Agricola, etc...and the softwares CAN/SDI and ISIS. Computer time is available free of charge, thanks to the support of IBM to AIT's Regional Computer Center. AIT provides the staff and other facilities needed.

CONSAL, though not supporting the project financially participates by promoting the use of the services offered and will play a major role in its final evaluation and eventual follow up actions.

This is only an example. Other similar feasibility studies or pilot projects could be undertaken requiring only limited outside funding.

Information Centers in developing countries are becoming more and more able of utilizing Computers for their work.

Computer based projects are also a typical case, where much cooperation is needed. Information Centers capable of using Computers must not duplicate their efforts. They must not study the same applications but rather share the work among themselves, become complimentary. Tackle different problems and exchange results.

### *3.2.3 Increasing Information Repackaging and Dissemination Activities*

In keeping with what I stated previously (see page 4), there is a great need to develop the "documentation" activities of existing Information Centers. Of course, here also spectacular changes imply much increased means and will be linked to the results of long term actions. But significant improvements can be brought about right now, depending on local situations and opportunities.

If what has been said earlier (see page 4) that a comprehensive Information Center having all five functions, acquisition, classification, storage, repackaging, dissemination can be considered as an ideal case very few Centers in the region operate that way. The important thing, however, is to admit that present situations are not adequate and to try whenever possible to get nearer the ideal situation.

For instance, a Library can attempt to develop its reference service. New envisaged Information Centers can be created at existing Institutions having good libraries in the fields considered.

Librarians can be trained to becoming what they should be dynamic information transfer agents, rather than stay emprisoned in the "static" role assigned to them by some narrow minded definition of libraries.

Linked to that "dynamic" role of librarians is the problem of users' training. Some of it can be done by the Information Centers themselves. Convincing users that they will benefit from using Information Services can be done to a certain extent in practical ways but to achieve this librarians *must go to* the potential users, not wait for them to come. It is worth trying for strong support from the users is of utmost importance for the development of Information Centers.

In addition to the organizational and human problems just discussed, they are many actions which could be undertaken to create new information tools needed and to provide users with the tailor-made information they require.

Let me list a few such activities:

**A-Bibliographic Control of Developing countries' publications (1).** Some surveys have established that about 70% of the scientific or technological literature generated in Asian developing countries are not recorded in any of the large secondary Information Sources produced in the West. This means that most of the scientific or technological production of developing countries will remain unknown. Though not always of very high level such documents are nevertheless highly relevant to developing countries problems and should be known at least by those countries. Some National Centers do make worthy efforts in the right direction by publishing Abstracts of work done in their country (for instance "Thai Abstracts", "Philippines Abstracts", etc...), but much more needs to be done at national levels possibly consolidated at a regional level. This undertaking is not an easy one. It involves a lot of cooperation, manpower, translation capacities, financial means, etc...but it is important for providing valuable, relevant information first of all to the developing countries themselves but also to developed countries which can less and less afford to ignore what is going on in the Third World. Such data bases, if done according to proper formats could even be inputed in the Western databases and serve on an exchange basis.

The example of AGRIS is quite interesting in that respect. Each participating country inputs its own agricultural information in an international data base according to standardized formats and in exchange can have access to the whole data-base.

**B-Bibliographic Control of Publications on "appropriate technologies".**

The so called "appropriate technologies" are of special interest to developing countries because usually they can be immediately applied with little means or expertise. Unfortunately, despite some increasing efforts done in some developed countries and despite an amazing number of recently created "Appropriate Technology Centers", that field is very insufficiently covered by existing Information Sources. What is needed is an efficient coverage of the considerable number of results and of on going projects on Appropriate Technologies on a worldwide basis. Because developing countries are the places where most of the work is being done and because they are the most concerned by that type of activity, they ought to do themselves something about it, with the support of international funding agencies.

**C-Filling in "Information Gaps".**

Because of insufficient collections, because of the fact that high priorities in developing countries are often not the same as that of rich countries, therefore, the information generated by the latter are not always relevant to the specific problems of development. Some "information gaps" in certain areas do exist in Third

World countries. When such "gaps" are identified clearly and correspond to high priorities, it is important to try to fill them in. An efficient way of doing so is, to create specialized Information Centers with regional responsibilities.

For instance, at A.I.T., we have created 4 small specialized Information Centers (see figure 3):

- The Asian Information Center for Geotechnical Engineering (AGE),
- The International Ferrocement Information Center (IFIC),
- The Renewable Energy Resources Information Center (RERIC), and
- The Environmental Sanitation Information Center (ENSIC).

The basic idea behind the launching of such Centers is that whereas it is extremely difficult to operate efficiently a multidisciplinary Documentation Center, it is possible by concentrating efforts on a very limited topic—a mission or a product—to cover that field comprehensively with rather limited means. If in addition, the topics chosen correspond to high priority areas and if those Centers have a regional responsibility their impact on regional development can be very high and within the limited financial possibilities of developing countries.

As can be seen, the basic idea behind that approach to sharing information resources is very simple, just common sense.

A few such Centers exist already or are being started, for products such as Rubber (Malaysia), Rice (Philippines), Coconut (Sri Lanka), Tin (Malaysia), Ferrocement (Thailand), etc... and for missions such as Renewable Energies (India, Thailand), Environmental Sanitation (Thailand), Irrigation (Israel), Geotechnical Engineering (Thailand), Living Aquatic Resources (Philippines), etc..

The role of a "Product" or "Mission" oriented Information Center is to collect, process and disseminate information on a specific topic in a comprehensive, efficient, well adapted manner, and this at a regional level. Users interested in that topic can therefore easily find the information they need by contacting the corresponding regional Center.

Our experience shows that such specialized Information Centers can be operated on very modest budgets and represent one of the most efficient ways of sharing resources at a regional level. I do not have enough time to describe longer that type of activity, which I have already reviewed in great detail elsewhere (1, 3, 4, 5).

#### 4. CONCLUSION

Information is a vital resource for mankind. Everyone must become conscious of this fact:



# AIT REGIONAL DOCUMENTATION CENTER



## ● FERROCEMENT

●●● *building boats — floating structures — low cost houses — grain storage bins — water tanks — biogas holders — irrigation and sanitation elements — etc . . .*

INTERNATIONAL FERROCEMENT  
INFORMATION CENTER  
(IFIC)

## ● ENERGY

●●● *Solar Energy — Wind — Biofuels — Small scale Hydropower — etc . . .*  
*Alternative energy technologies for tropical developing countries.*

RENEWABLE ENERGY RESOURCES  
INFORMATION CENTER  
(RERIC)

## ● SANITATION

●●● *disposal and reuses of wastes . . . . .*  
*Low Cost options for sanitation in developing countries.*

ENVIRONMENTAL SANITATION  
INFORMATION CENTER  
(ENSIC)

## ● CIVIL ENGINEERING

●●● *Soil Mechanics — Rock Mechanics — Foundation Engineering — Earthquake Engineering — Engineering Geology — etc . . .*

ASIAN INFORMATION CENTER  
FOR GEOTECHNICAL ENGINEERING  
(AGE)

**APPROPRIATE INFORMATION SERVICES for  
APPROPRIATE TECHNOLOGY TRANSFER**



*For further information, please write to:*

*The Director - Library & Regional Documentation Center,*

*AIT - P.O. Box 2754*

*BANGKOK (Thailand)*

- decision-makers, who are in a position to provide the increasingly important means necessary today to Information Centers for facing successfully the dramatic situation arising from the so-called "Information Explosion".

- potential users, who must become aware they cannot in our present modern world be really efficient without good information and that the setting up of strong information facilities in their country ought to be one of their major concerns.

- librarians and information specialists, who are strongly urged despite many difficulties to cooperate among themselves, to share resources, to play a dynamic role in disseminating the information treasures they acquire and store in their Centers.

- A decent access to Information cannot be achieved if the three categories of people—decision-makers, users and Information Specialists—do not unite and cooperate in trying to solve the problem.

Especially you, users, I urge you not to let your librarians fight their battle alone: having good libraries, good information services ought to be as much your concern, if not more than theirs.

Long term large scale actions are necessary but meanwhile much improvement can be achieved already with limited means. I have given you a few hints:

- progressively increase acquisition and operational budgets of libraries,
- increase the qualifications of librarians by proper training, and train also the users,
- improve the status of librarians and information officers,
- develop the dissemination of information by strengthening the reference sections of libraries and establishing small Information Centers, if needed and whenever possible.
- cooperate actively in all types of "resource sharing" activities at national, regional and international levels.

Because of the frightening "information explosion" the future is very dark indeed, and will need the full awareness and cooperation of decision makers and of users to improve significantly. This will take time. Meanwhile, let us not give way to despair and discouragement. We all can do something constructive in our local situations even if on a modest scale.

A Chinese proverb says "Rather light a candle than complain about darkness".

Well let us do just that "light a few candles" here and there. If we all do it, we shall already dispel much of the darkness, significantly improve that access to Information so badly needed for our countries' development.

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