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**Information for Environmental Impact Assessment:
A Background Paper Prepared for the EIA Regional
Workshop in Indonesia**

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1. Purpose and Background

The purpose of this brief paper is to identify some of the more pressing information issues that have to be dealt with in the Environmental Impact Assessment (EIA) process and suggest how these might be analyzed and managed more effectively and efficiently. Along the way, the paper identifies information tools that can be used to increase the efficiency of developing and using information.

We focus principally on the problems of environmental quality and natural resource information, not the social and economic. The paper also raises questions that the workshop participants might wish to consider as they develop plans for improving the EIA process and its impact on the environment.

Environmental Impact Assessment is a voracious user of information. Carrying out EIAs for projects and programs requires all kinds of information (social, economic, natural resource, and environmental quality) and at all levels or scales (site-specific, watershed, subnational, national, and even global). Many different types of information are used in an EIA (statistical, spatial, bibliographic) and information is critical at every stage in the EIA process. Much of this information is readily available from local and national ministries, universities, and the private sector, but a lot of it must be pulled together using a variety of investigative and quasi-scientific methods. In many cases analysts have to collect raw data from the field. EIA is both a major user of information and increasingly a supplier of data and maps.

EIA has become a regular activity of local and national governments in many Asian countries. EIAs for projects and programs assist in decision making and in planning. Information is needed at each stage in the EIA cycle: screening, identification of issues, scoping, field reconnaissance, feasibility studies, development of options, mitigation measures, monitoring and reporting on compliance, and evaluation. For some projects, and definitely for programs the information collection, analysis, and reporting functions continue after the completion of the initial EIA.

In many countries environmental information needed to assist EIA practitioners is not well developed. Monitoring of air and water quality, hazardous and industrial wastes, toxic substances, as well as measurements of land and soil degradation and the loss and threats to wildlife are not carried out systematically. If data are available, little is known about their reliability and rarely is this information readily accessible in a central catalogue and referral system.

Researchers have identified at least seven major environmental information issues, which we have grouped into two categories: the data and analytical issues and the institutional issues:

Data and Analysis Issues

- i) determining information needs
- ii) accessing information from available sources
- iii) gathering new information
- iv) analyzing information
- v) presenting information to different audiences

Institutional Issues

- vi) training and information management requirements
- vii) institutional support

How these issues affect a groups' ability to carry out an EIA depends on many other factors or what we have called the underlying determinants of information supply and demand. These include:

Underlying Determinants of Information Supply and Demand

- i) the stage in the EIA process
- ii) the type and size of project
- iii) the method of EIA applied
- iv) the legal and political framework
- v) cost and time available

A simple matrix of issues and determinants is shown in Appendix 1. We believe a matrix such as this can be used to consider the kinds of issues that have to be addressed and taken into consideration in the preparation of an EIA and in the long term development of EIA in a country.

2. Underlying Determinants of Information Supply and Demand

A number of authors and surveys have identified information issues, such as data availability and quality, as serious constraints in conducting environmental impact assessments in developing countries.

If we want to improve the quality and impact of environmental impact assessments in developing countries, efforts should be undertaken to improve the quantity and quality of natural resources information in developing countries. factors.

Five factors greatly influence information needs and issues. These are: the stage in the EIA process, the type and size of project assessed, the methodology used for the environmental impact assessment, the legal and political framework of a country, and the cost of the assessment. These factors can be used to develop specific recommendations for dealing with information issues.

Stage in EIA Process

There is no universally agreed upon definition on how EIAs should be conducted. EIAs are quite diverse, depending on legal requirements, institutions, and knowledge base. The most important phases of an EIA can be characterized as follows:

1. Preliminary activities
2. Scoping
3. Baseline study
4. Impact evaluation
5. Mitigation measures
6. Preparation of environmental impact statement
8. Circulation of environmental impact statement
9. Public hearing
10. Formal approval
11. Monitoring

These phases must be linked to a specific project or program cycle, for example an irrigation project executed for a multilateral development agency. Each successive phase of an EIA has specific information needs and information sources.

Preliminary activities for an EIA can include an initial screening of projects for their potential environmental impacts. For example, projects could be classified in three categories: projects that rarely have a significant negative impact (education, population and health, etc.); projects with significant negative environmental impacts, but for which mitigation measures are available (agro-industries, small-irrigation schemes, water supply and sanitation, etc.); projects with significant negative environmental impacts (large-scale irrigation project, urban development, new lands development, etc.).

Information sources needed for the screening process include operational directives and guidelines. The information needs for such a screening are therefore low, information collection methods straightforward. Once the operational directives are established, very little analysis is required and information presentation is not an issue here.

Preliminary activities could also include an initial environmental examination (IEE). An IEE is a rapid screening of projects to check if they require a full environmental impact assessment. Projects are generally evaluated with easily obtainable information and the examination has to be within a very limited budget. Projects are assessed in regards to the same categories as a full environmental impact assessment, such as physical resources, ecological resources, human use values, and quality of life values.

Information sources required for an initial environmental examination include national level data and information on legislation pertinent to the project. Information needs are moderate. The information needs in regards to collection method, analysis, and presentation are low.

The scoping phase sets the boundaries of an EIA, delineates significant issues, establishes time limits for the different phases, and often sets page limits for the environmental impact statement. In some countries, legal requirements specify that the scoping phase (i.e. preparation of a draft environmental impact assessment) is open to the general public and local and national agencies.

The purpose of the scoping phase is to ensure that only relevant problems are identified, that problems are identified early, and that problems are examined adequately. Scoping can identify people and organizations that have relevant information and induce them to make it available. A good scoping phase can save time and money and contribute to increase public confidence in environmental impact assessment process.

Information needs in the scoping phase are high, especially in regards to identifying relevant problems and identifying organizations with relevant information. If the scoping phase is participatory, the presentation of information must be easily understandable. Information analysis plays a minor role in the scoping phase.

There are specific information needs when the terms of reference are prepared for an EIA. Terms of reference usually give general and specific guidelines for the preparation of an environmental impact statement. They include a section listing background studies and reports. This section describes and summarizes the available information which relates to the environmental aspects of the project, provides a bibliography of all relevant previous studies on the subject, summarizes significant findings, and provides information how these reports can be obtained.

Possible information sources include country environmental profiles and national data and indicators. Information needs are moderate. Collection methods, analysis, and presentation play a minor role, when the terms of references are prepared.

Type and Size of Projects

The type and size of a project determines if a full EIA has to be conducted (see previous section). It is very difficult to generalize on information needs for projects. A number of countries have specified what type and size of project require an EIA. Thailand, for example, requires a full environmental impact assessment for dams, irrigation projects, airports, hotel construction adjacent or within national parks, rapid transit system, mining, industrial estates, harbors, thermal power plants, and specific industries.

Method of EIA Applied

There exist over 100 methodologies that can be used to conduct an EIA, ranging from very qualitative to highly quantitative. These methods differ in their information demands. Environmental impact assessment teams usually utilize a combination of methods, which are determined specifically by expertise, time, budget, suitability for a project, and data availability.

The methods most often mentioned in the literature include checklists, environmental evaluation, matrices, networks, overlays, environmental indices, cost-benefit analysis, and simulation modeling workshops.

Overlays, cost benefit analysis, and simulation methods have high information demands, while networks, matrices and indexes have moderate information needs. Checklists are easy to use and have low information demands. Overlays using maps - either with or without GIS - are time consuming and expensive. Matrices highlight key issues and can be useful to point to information deficits. While matrices are cumbersome to assemble, they are can present information concise and in an easily understandable way.

Legal and Political Framework

A country's legal framework is an important determinant of information supply and demand: it determines how much detail is required; it proscribes standards or thresholds that have to be met thus directly influencing the extent and type of project monitoring that is required; it can even set out what level of accuracy is required and what kinds of information are

legitimate. Of course EIA regulations shouldn't be written without regards to available information and science.

The political framework determines the degree of participation in the environmental impact assessment process, which in turn determines who can bring information to bear on the decisions. If the process is relatively open, then NGOs and others can compile information and use it to influence the decision.

Cost and Time

In developing countries funding for environmental impact assessments are relative low compared to some industrialized countries. Generally budgets and scope of environmental impact assessments are kept to the minimum. For example, in Thailand, the average cost for an initial environmental examination has been estimated at \$US 1,000. The cost of an EIA for a water resources development project has been estimated at 0.01-0.16 percent of the total project cost (\$50,000-890,000) and for a industrial development project 0.014-0.48 percent of the project costs (\$26,100-87,000).

3. Information Issues

Issues may be thought of as problems that need to be managed, rather than solved. Because the EIA process is so information intensive, these issues will continue to play a principal role in influencing the outcome and utility of EIA. How the information resource is managed will greatly influence the effectiveness of EIA and other environmental assessment, planning, and management activities.

Data and Analysis Issues

i) Determining Information Needs

Identifying the information needed to carry out tasks in EIA is an essential process. The needs vary depending on the stage of assessment. Major questions include: What information is needed? What types? At what scales, accuracy, timeliness? Does the source of the information make a difference? There is also the question of legitimacy. Whose data can you trust?

At least three approaches can be used to determine information needs: interviewing major clients (what do they say they want? and What do they now use?); reviewing requirements of the legislation or regulations, that is, determining what is legally required or is traditionally required for a given EIA;

and conducting a simple cost/benefit study to decide how much effort to put into data compilation and collection.

An important first step is to identify the environmental and development issues that have to be addressed. One short cut is to examine existing national, subnational, and regional environmental profiles and state of environment reports. These documents will help identify problems and issues and provide documentation on existing statistics, maps, and other information. National reports for the recent UNCED are valuable tools. Major sector studies are also helpful.

Another good starting point is to review the guidelines and sample terms of reference provided in the World Bank's Environmental Assessment Sourcebook, Volume II, Sectoral Guidelines. These cover Agriculture and Rural Development (ag production, IPM, agroindustry, dams and reservoirs, fisheries, flood protection, etc.) and Population, Health and Nutrition; Transportation; Urban Development; Water Supply and Sewerage. Volume III includes guidelines and terms of reference for energy and industry projects.

These sources will help identify potential negative impacts and mitigating measures from projects and programs, which can be used to identify key data needs.

A checklist of subjects and major subject matter data is included in Appendix 2. This can be used to consider what might be needed in a given EIA. It may also be used to develop a more comprehensive set of data and information at the national or regional level to support EIA and other assessment and planning activities in a country.

Has a set of environmental or natural resource indicators been developed for the country or region? And, has anyone developed indicators for measuring sustainable development?

Some countries are beginning to conduct public opinion surveys to better understand what the public believes are critical environmental issues.

ii) Accessing Information from Available Sources

Getting access to statistics, maps, bibliographies, lists of experts, legislation and regulations, technologies, and other information is time consuming and costly. Information, too, is a resource and can be a valuable commodity. Countries have a considerable amount of baseline data, monitoring data, and special studies, but this information is often poorly inventoried and catalogued, and it is often restricted from public use or the cost of acquisition is high. An associated issue is, How good is

the information: how useful and how reliable?

Most of the basic information needed for EIAs is compiled by government agencies and used for assessment and other purposes such as planning, management, monitoring, and evaluation. It is therefore essential to have listings of all these sources.

A simple telephone directory of the statisticians in the government is a good starting point for locating available data and maps. Governments and private sector industrial associations can be encouraged to prepare guides to environmental information that identify the major data variables, data bases, and publications. Local and national networks of EIA specialists can be established and bulletin boards and newsletters started to alert experts to new information sources and methods for accessing data.

A government ministry, an NGO, or university can set up a documentation center or reading room so that EIA reports and other assessments and studies can be accessed by the public, researchers, and the media.

There are a number of ways to determine accuracy and legitimacy of the data. Has the data been compiled by a reputable organization using standard collection, processing, and analysis techniques? Generally, data collected for a time series are of better quality than those for single time studies because of the institutional care given. Are the data collection methods documented? Can you call someone to find out about collection and processing? Are there competing sources of data?

iii) Gathering New Information

If the data are not available and it is determined that the data are essential for the EIA then new information has to be collected. This is costly.

Can the information needed for the EIA be gathered as part of a larger project or program? Can the data be compiled as an ongoing monitoring program of the country? Can existing surveys, field stations, and administrative records be used to compile the data, thus reducing costs and making it more likely that the data can be compiled on a time series or periodic basis in the future? These and other questions should be asked, particularly if the project is large in scale or expected impact.

If baseline data is required, it is critical to use standard classifications and collection methods and protocols that will make the information comparable and therefore useful to others. In this way, EIA can be a valuable source of information.

A useful source to use in considering how to gather new data is the Resource Inventory and Baseline Study Methods for Developing Countries, American Association for the Advancement of Science. Published in 1983, this 500 page guide is now a bit out of date, but provides excellent information on how to monitor aquatic ecosystems, soils, plants, and wildlife for environmental impacts. It contains an index and extensive bibliographies.

Fred Weber has prepared a brief 35-page report, Preliminary Indicators for Monitoring Changes in the Natural Resource Base. Indicators for measuring water quality, soil erosion, vegetation, wildlife, and unique areas are included along with low-cost methods for each.

Another useful source is the Areawide Environmental Impact Assessment: A Guide, prepared by Skidmore, Owings, & Merrill. It provides an assessment methodology that covers all major potential environmental impacts and provides guidelines on how to establish an areawide data base to carry out assessments.

iv) Analyzing Information

The issue of analyzing information to assess impacts and options is rapidly changing because of new data processing and mapping technologies. A major issue is whether to invest in a geographic information system (GIS) for the area under study. This decision influences the amount and type and scale of data collected and the kinds of analyses that can be undertaken. It also helps to determine the future of the activity.

A useful source for understanding the issue is chapter 6, "Resource Information Management", found in Natural Resource and Environmental Information for Decisionmaking by Hassan M. Hassan and Charles Hutchinson, editors, World Bank, 1992. The authors make a clear distinction between an institutional GIS for strategic planning or operations, both of which can be designed as a permanent function associated with an existing agency or agencies to handle information management tasks; and a project GIS, which can be established for assessing an environmental impact.

This report also provides a simple step by step approach to developing a GIS. See pages 58 - 63.

v) Presenting Information to different audiences.

If people don't read the EIAs, then of what use are they? These reports are often too academic, bureaucratic, and voluminous. And they often don't concentrate on the issues that most need attention. Part of this issue is content, the other

part is selection and packaging.

This is not strictly speaking an information issue, but a communication issue. With word processing software, desktop publishing, and simple graphic and map displays, there is growing capacity to prepare an inexpensive, high-quality document.

Other ways to communicate the findings, particularly for larger projects, include interactive video that allows the public to choose alternative scenarios, preparation of executive summaries, poster presentations, all aimed at getting widespread media coverage and increasing public awareness of the issues and the choices.

Institutional Issues

vi) Training and Information Management Requirements

Information management and training requires considerable investment in time and money, not for the preparation of a single EIA, but to develop the information support for the EIS process. Critical issues are ones of staffing and training (knowledge, skills, matching training and skills to tasks, etc.) and equipment and facilities (computers, hardware, software, telecommunications, infrastructure, materials).

Training needs connected with performing EIAs and the associated information may be grouped into areas of collection, analysis, and presentation.

Collection. Skills here have to do with identifying and obtaining the required information.

- o search techniques - understanding how to obtain information through interviews, through electronic means, through reference material and where to obtain information - public and private sources, libraries, international organizations;
- o design - if field collection becomes necessary in the absence of baseline data, understanding where to collect what types of data, in what detail, over what period of time, how often and understanding exactly how the data will be used;
- o storage - knowing how to record, organize and place manual and electronic information for use and also how to develop or add to an existing information system for continued and future use.

Analysis. Abilities here have to do with recognizing good and bad data and what to do about it.

- o data - understanding what to look for in raw data and questions to ask about it, how to develop summary data in a useful way;
- o statistics - learning how to do simple statistical analyses and when to use which technique and what the limits are of the techniques;
- o numerical - learning some basic numerical analysis techniques for data manipulation - particularly important in understanding the data requirements of mathematical models that may be used.

Presentation. Developing abilities here for making information clear, understood, and for conveying how the information can best be used.

- o graphics - learning the visualization of quantitative information, using techniques of Tufte and others;
- o distillation - developing abilities to understand what the data tell you, sort out the basics in the findings and recommend realistic and cogent options.

Other Skills.

- o costs - as a part of any training effort should be information on costs - how to calculate them, how to optimize them - for obtaining (particularly where field work and associated expertise, instruments and equipment are concerned) and analyzing (particularly where the use of mathematical models are concerned). Developing budgets for information collection and generation is useful both in setting priorities for what is and isn't important and also for realizing how expensive adequate environmental assessment is - a factor not always accurately and fully portrayed in presenting environmental costs of a project;
- o training trainers - so that training can be an ongoing process, the development and use of an environmental training center would be useful - cofunded by the agencies and organizations that would benefit and perhaps by lending organizations also.

Information management issues, such as computer hardware and software, are usually addressed depending on the kind and amounts of data that have to be processed, stored, analyzed, and

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presented. Text, tabular, and spatial information require distinct software though there are programs that can link all three kinds of information. GIS requires software for map digitizing, map display, database management, and map analysis. To bring in remotely sensed data often requires use of image processing software.

A good summary and review of existing software, their characteristics, and prices is given in Hassan and Hutchinson. They also provide costs for purchasing satellite imagery.

vii) Institutional support

There are a number of institutional issues that require examination. While most EIAs are carried out by consulting firms and other private organizations, information resources are principally found in government organizations. The question is, are these organizations equipped to handle the growing information demand?

Does the organization have a mandate to compile and make information available to others? Who is responsible for the EIA? Do those who work on EIAs have any influence over the data gathering agencies and ministries of a government? Do they have authority to compile information from private sources?

Does the institution have the staff, management, and financial resources to maintain and databases required for EIAs? Who deals with issues of duplication, data standards, coordination, and information access?

A central environmental council should have the authority to review EIAs and analyze information needs, coordinate data collection and distribution, and promote sharing of information. Establishment of a documentation center and simple bibliographic databases on existing EIAs and core data would increase efficiency.

4. Questions for Workshop Participants

There are a number of ways in which this paper could be used by workshop participants.

First, as part of the discussion of the workshops, participants may choose to identify the various problems they face in dealing with information for EIA.

These problems could then be categorized as short term or long term; as ones of procedure or analysis; as ones of technology, training, policy, or institutional support; ones that

are costly or inexpensive to deal with; etc.

Participants may want to rank problems.

Second. Another suggestion is that participants consider working through the Matrix to see if the information issues and the underlying determinants are useful. What does this exercise suggest?

Third. Participants may want to list some of the ways in which the issues can be managed. What suggestions do they have for increasing information sharing within and across sectors, countries? What can be done about training? About institutional arrangements and coordination?

Finally. What kinds of assistance are most needed to deal with information issues? Financial, technical support, information, research, other?

Appendix 2. Checklist of Core Data: Statistical and Spatial Information

1. Agriculture: production, inputs, conditions
2. Forestry: production, inputs, conditions
3. Fisheries: production, inputs, conditions
4. Industry: production, process materials, wastes
5. Energy and Minerals: resources, reserves, production, recycling, reuse
6. Urban: population densities, housing stock, commercial locations
7. Infrastructure: ports, roads, rail, airports, telecommunications
8. Transportation: vehicles, facilities, use
9. Population: growth, distribution, immigration
10. Climate: precipitation, temperature, wind, storms
11. Topography
12. Geology
13. Soils
14. Biodiversity: species, populations, habitats
15. Water Resources: availability, runoff, storage, use
16. Water Quality: rivers, streams, groundwater, coastal
17. Air Quality: urban, regional, indoor
18. Land Use and Cover: uses, vegetative cover by type

Administrative Boundaries
Place Names

Appendix 1: Matrix

DETERMINANTS	INFORMATION ISSUES						
	Determining Info Needs	Accessing Info from Available Sources	Gathering New Info	Analyzing Info	Presenting Info to Different Audiences	Training and Info Mgt. Requirements	Institutional Support
Stage of EIA Process							
Type & Size of Project							
Method of EIA Applied							
Legal & Political Framework							
Cost & Time							

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etc. might be available. Some centers, particularly those related to agriculture, also operate as educational institutes.

Consulting organizations - The local office of a consulting firm, while having a profit motive, could share reports and documents, if this would fit in their overall marketing strategy. If the organization is large enough, they might have a reference library. There may also be several EIA or information specialists native to the country.

National

Financial institutions - Several sources for interest rates, loans, debt financing, taxes, exports, imports, economic growth, sector performance, etc. can be found in:

- o National banks - State-owned banks are often the designated repository of selected national financial and economic data;
- o Agricultural development banks - They are a good source for agricultural data on crops, exports, imports, land values;
- o Ministry of finance - Budgetary information, financial and economic plans can usually be found at this source.

Utility institutions - Agencies providing power, telephone and water/wastewater services are usually government-run. or, in some cases, operate by cooperatives.

- o Electricity service - The state-owned electric service may be divided into a power generation entity and a second one for distribution, or they may be combined. These utilities can be divided regionally or each large city may have their own electricity service. Data on fuel, power plants, transmission and distribution, consumption and future plans should be available, together with some financial and economic data can be found at these source. Natural resource data may be scarce and if it exists, will probably be in the form of a project report or study;
- o Water agency - If water service is not a "free" good, a government agency usually provides water services. Water data on supply and possibly on quality should be available, along with future plans, possibly watershed studies, maps and some demographic data. Other natural resource data will very likely be available in a project report.

Ministry of Natural Resources - This institution may have reference documents and can be helpful in providing information on local conditions, distribution of species and ecosystems and

Appendix 3. Discussion of Data Sources

Sources for information are varied and there is no exclusivity involved. Copies of the same report or database may be found in more than one location, so the comments about these sources are only general in nature. In addition, there can be no guarantee of finding the information sought at any of the following sources - their mention is a place to start, a direction to head in. Agency names or titles are listed as examples, the actual name and function will vary from country to country.

International

Development banks - Most of their information is proprietary. However, development banks often have access to the best available data and once a report is published, it will be a useful reference document. Development banks can provide other information, such as working papers, research reports, operational directives, checklists, manuals, and program documents.

United Nations - The Resident Representative for a given country will likely have copies of documents and reference material from the UN Environment Program and may even be able to access on-line UN databases for the country of interest.

Bilateral organizations - These organizations can be a source of reference material, reports, and data bases and possible on-line connections, for example to a reference library. Staff specialists often have detailed knowledge on how to frame a particular issue, where to find what types of data, and on who's doing what.

Museums - Staff working for international museums can be helpful in providing information on the location and conditions of specific archaeological and natural resource sites. They can also be helpful with their reference collections, reference documents, and contacts for on-going related work. International museums may work through local museums or have field staff working on a specific project.

Non-governmental organizations - Their staff can often be helpful in finding information within national agencies and organizations and particular local NGOs because of their network of contacts with development agencies, government agencies, and organization in the field, for example local communities and local cooperatives, utilities and health care providers.

Research centers - They are often among the best sources of data, especially if they have collected information for a particular project. Then time series data on species, forests, streams,

perhaps ongoing inventories;

- o National geographic and geologic survey - This can be a good source of maps, for example on topography, groundwater, geology;
- o Meteorologic center - Data should be available for rainfall from rain gauging stations, if they are serviced adequately;
- o Natural history museum - This can be a good source for reference collections of plants and animals, maps and specific site information. Their staff can provide helpful contacts to experts and other information sources. The local zoological park and botanical garden may also be a helpful source.

Ministry of Agriculture - This can be a reasonably good source on agricultural production, land values/subsidy programs, chemical use, harvest cycle/processing, etc.;

Ministry of health - Information on current diseases, historical disease information, epidemic data, water-borne disease, disease vectors can usually be found at this source.

National statistics office - National statistics offices often act solely as a repository of information, depending on other agencies to provide environmental data.

Cadastral archives - They have usually up to date and complete information. However, data are often plagued by a high degree of variability and unreliability, particularly for rural areas and for countries in which land ownership is a sensitive political issue;

Government publications office - If such an office exists and to be useful, must control government printing and not rely on agencies to have documents printed elsewhere and provide the office with a copy - in theory, all government documents would be available here;

National library - This is often a surprisingly abundant source, especially for general historical information about nature, geography and geological surveys.

Centers, councils, and other national non-governmental organizations - They can be helpful with information on policy, strategic plans, and recent events and calendars.

- o Special councils and commissions - Membership is usually interagency and/or public-private (Inter-agency committee on energy, Environmental Commission, etc.) thus making cooperation necessary to work and also the secretariat is usually capable and knowledgeable about

new sources of information, new policy being developed, etc.

- o Universities - They are often a good source of expertise and can provide some data bases (from research), contacts, and information network. Universities may be best facilities for laboratory analyses and electronic data processing;
- o Research centers - These centers often have the best expertise and information available on some aspects of specialty - data bases, reference documents, on-going projects, and reports. Most of the staff are also well connected with other regional and world-wide organizations with similar interests;
- o Non-governmental organizations - Local NGOs often have good connections to selected key governmental personnel and occasionally good access to information in their field of interest. Their information may be tainted with a point of view, but not necessarily. Their advantage is the closeness of these organizations with the public and with the nature of many issues.

Special sources - There are usually a few sources and types of basic information that may not always be available through traditional means, but are a little off the beaten track. The EIA preparer should always be alert to the possibility of a source - for example: (i) while reading a local newspaper, an article on the subject of interest appears, which could lead the reader to follow up with the staff writer of the article and his/her source of information and also it may lead to a search of the newspaper files - some newspapers have invested in very sophisticated information storage and access software; (ii) the private sector may be a knowledgeable source of information and expertise - a botanical garden, a butterfly farm, aquaculture enterprise, organizations searching for new species and/or species of medical and commercial importance, etc. may not only be knowledgeable about the distribution of species, their status and possibly some natural history, but also the existence of sustainable, profitable enterprises based on nature that support the economic value of natural systems; (iii) tie into global trends and issues.

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