

Contemporary Data issue for Communication and Information Exchange within and among Institutions for Decision Making Processes

(Organizational Information Management System)

“Consultation Workshop on Setting up ECC- Education Database System”

By Tesfaye Gizaw (Dr.)

Ethiopian Catholic Secretariat

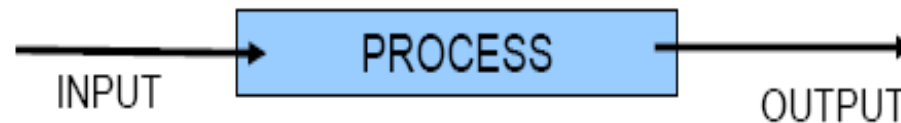
Addis Ababa, 22/06/2010

Points to be discussed

- System and System Thinking
- Data and information
- Information Systems and Organizations
- Quality of Information
- Information Management Life Cycle
- Challenges in using Information
- Education as a System
- Education management Information System
- ECS initiatives for information management

Systems and System Thinking

- A System is “A set of elements or components that work together in relationship for the overall Common good and objective (or vision) of the whole”.
- Eg. A Motorcar, Human body, Organizations, etc ...
- A System has three clearly identified parts: Input, Process and Output.



- The function of a system is to convert or process the Inputs to achieve useful Outputs

Examples of a System

A motorcar

- Petroleum is the input
- The engine is the processor and
- The movement of the car is the output

A human body

- Food is input
- The living body (the units within the body) is the processor and
- The growth and movements of humans is the output

System Theory

Boundary

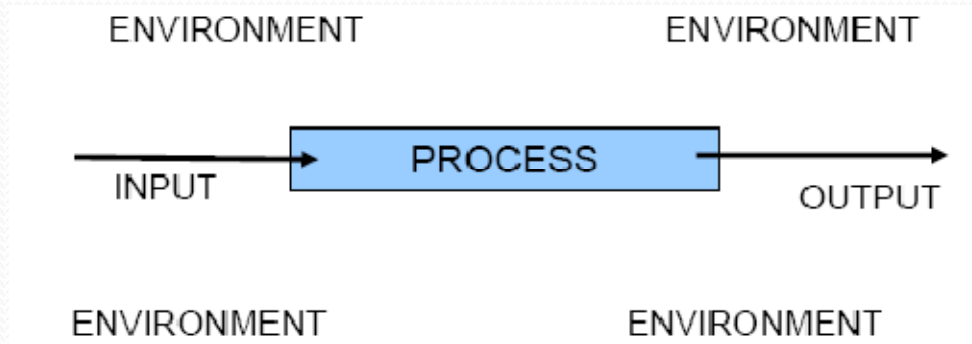
- The system boundary separates the system and its components from its environment

Environment

- A System's environment is defined as those external elements of a system
- Most systems operate within the context of an environment and interacts with it by receiving inputs from it and delivering output to it

System Theory

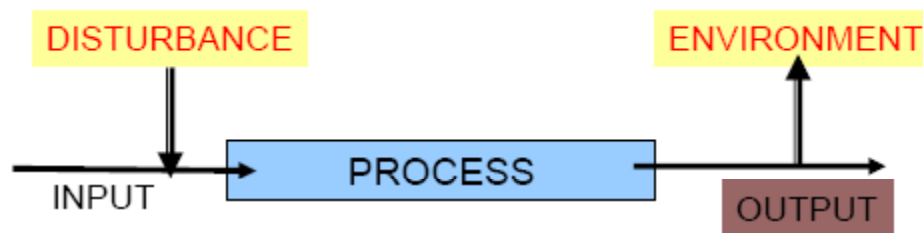
- The required output does not depend only on the input and the processor. It is equally important to consider the Environment in which the system is supposed to function.
- These are external factors that affect the output, known as disturbances. These should also be considered
- Eg. Note that the motorcar is also subject to external factors such as road surface, steepness of the ground, wind speed, etc...



Key Features of a System

Open systems

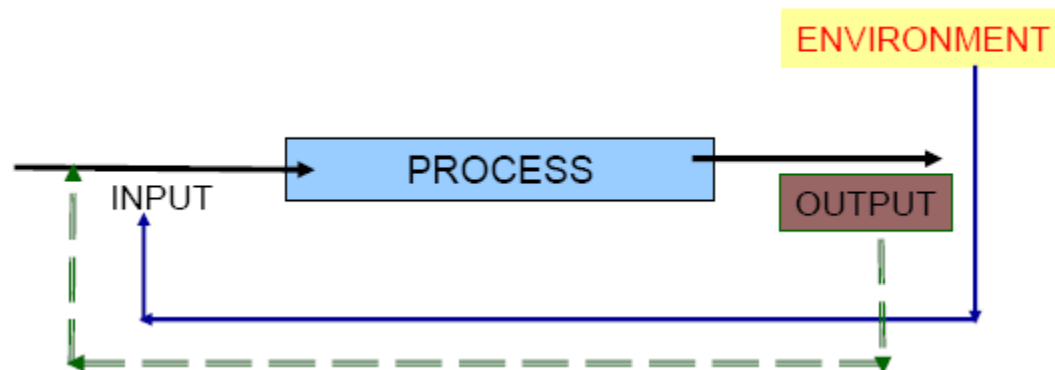
- An open system is one that interacts with its environment or other systems whereas closed system is one that has relatively little interaction with the environment or other systems.



Key Features of a System

Feedback control system

- A part of the system output is returned as an input to the system as a feedback
- The system may have a good processing and analysis activity in place but if there is poor use and utilization of feedback information then we cannot get what we want.



System and Sub-Systems

- The system is made up of subsystems that contribute to the proper functioning of the system. The subsystem taken alone could also be considered as a system for itself.
- Eg. The Human body is a system composed of various subsystems such as, the circulatory system, the digestive system, the nerve system, etc. They all together function for one goal: The proper functioning of the body.
- Similarly an Organization ...

Defining characteristics of a System

- Every system has a purpose within a larger system
- All of a system's parts must be present for the system to carry out its purpose optimally
- A system's parts must be arranged in a specific way for the system to carry out its purpose
- Systems change in response to feedback
- Systems maintain their stability by making adjustments based on feedback

Information Systems

Data versus Information

Input: Data

- Data and information are not synonym. Data are raw materials, defined as group of non-random symbols which represent quantities, actions, objects, etc. They are symbols that will never be a complete representation of, or the same with, reality, but they describe objects, events and their relationships incompletely.

Processing

- Think of a factory that produces textile. This factory needs cotton as one of its major raw material for input. The factory processes the cotton to convert it to different types of garments. The same is true in Information Systems. Data is a raw fact that needs to be processed to give meaning.

Information Systems

- Processing is changing data from unusable into usable form to the intended recipient to make decisions or to alter the receiver's current direction. In general processing is changing the raw material. i.e. changing data to a finished product, that is information.

Output: Information

- Information is defined as a valuable processed data that is meaningful to the receiver to make decisions. The difference between data and information is that data is more related to recording historical or current facts, whereas information is related to affecting the measures or actions to be taken either currently or in the future.



Information Systems

- Information has value because it affects current and future actions of management. This means information is related to making decisions.
- The produced information can bring motivational changes in the behavior of individuals.
- It can also serve to build the background of individuals so that they can make better decisions by using the information effectively.

Defining Information System

- Organization

An organization is a stable, formal social structure that takes resources from the environment and processes them to produce outputs.

Organizations need information system as a sub-system.

- Information System

A set of interrelated components working together to collect, process, store, and disseminate information to support decision making, coordination, control analysis and visualization in an organization.

Quality Information

The value of information decreases or becomes unimportant if it is outdated, inaccurate or difficult to understand. The information used should satisfy the following dimensions to have a value of high quality.

Timeliness:

- Information should be available for problem solving before crisis situations get out of hand or opportunities are lost. It is not enough to provide management with data. Though past information can be used for controlling purpose or for understanding trends, forward information and analysis concerning trends developing inside and outside organizations must also be provided.
- To satisfy the quality of timeliness, information should be up to date (current), available at the time of need, and should be provided as often as needed (frequency). Therefore, an information system can be designed to provide information whenever a manager wants it (demand reporting) or at regular intervals (periodic reporting).

Quality Information

Accuracy:

- Ideally all information should be accurate or free of errors or bias. However, “features that contribute to system accuracy add to the cost. For this reason managers are forced to settle for less than perfect accuracy.
- Applications involving money such as payroll, billing, and accounts receivable seek 100% accuracy. Other applications such as long range economic forecasts, statistical reports often can be just as useful when the data contain a few errors.” (Raymond, 1995)

Relevancy:

- Information is said to be relevant when it pertains to the problem at hand or to a specific situation. Only needed information should be provided and the manager should be able to select information that is needed without going through a volume of information on other subjects. One has to avoid unnecessary information, and the information should be concise and to the point as much as possible.

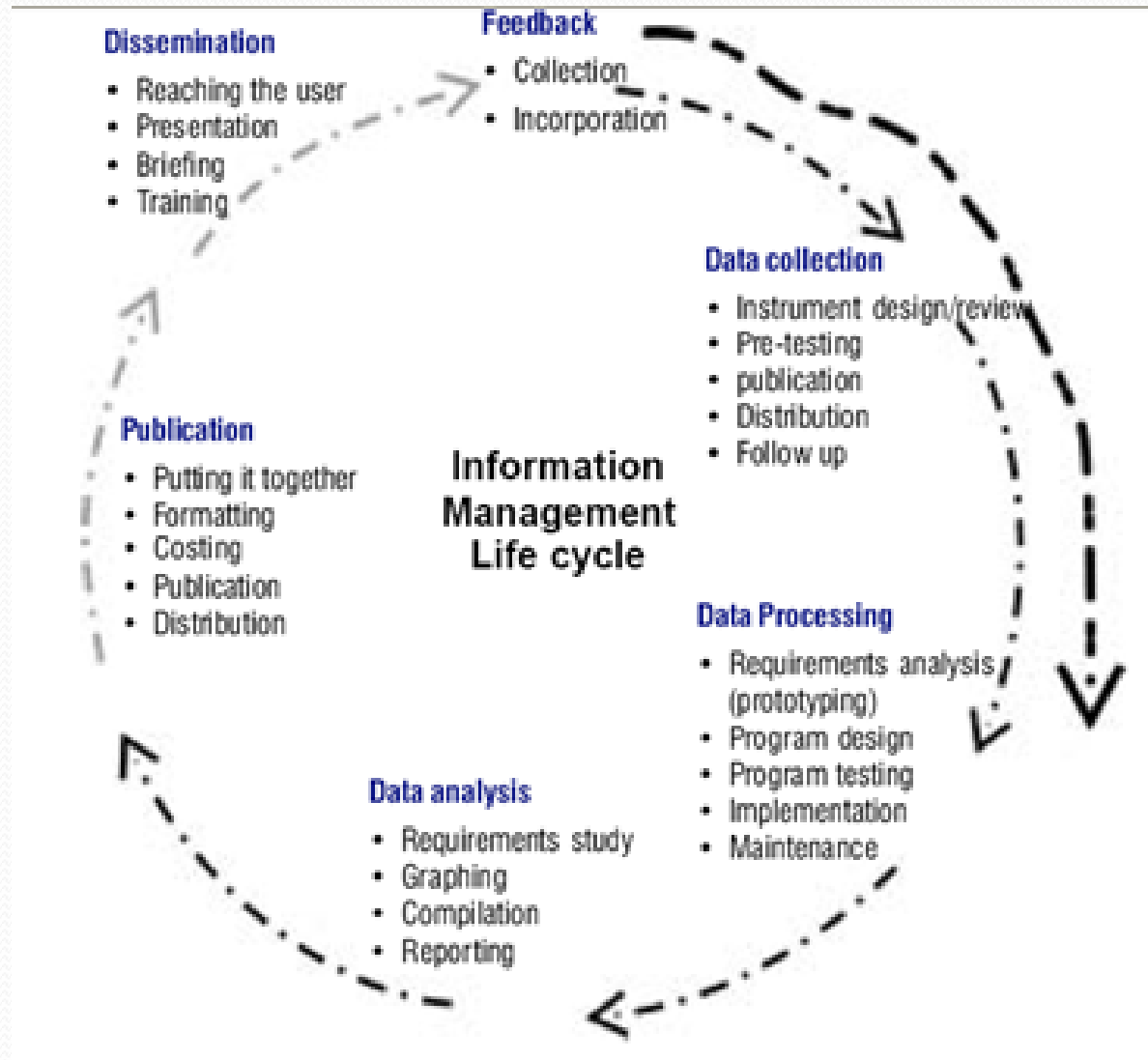
Quality Information

Completeness:

- The manager should be able to obtain information that presents a complete picture of a problem or a solution.
- Any information when presented should be clear and easy to understand. Thus systems should not be designed in such a way that draw a manager in a sea of information.
- The term information overload recognizes the harm that can come from too much information. The manager should be able to determine the amount of detail that is needed whenever he is trying to deal with problems.

Information Management Life Cycle

- To achieve the goal the following Information Management Life Cycle shall be clear to all



Reasons for not making decisions on perfect information

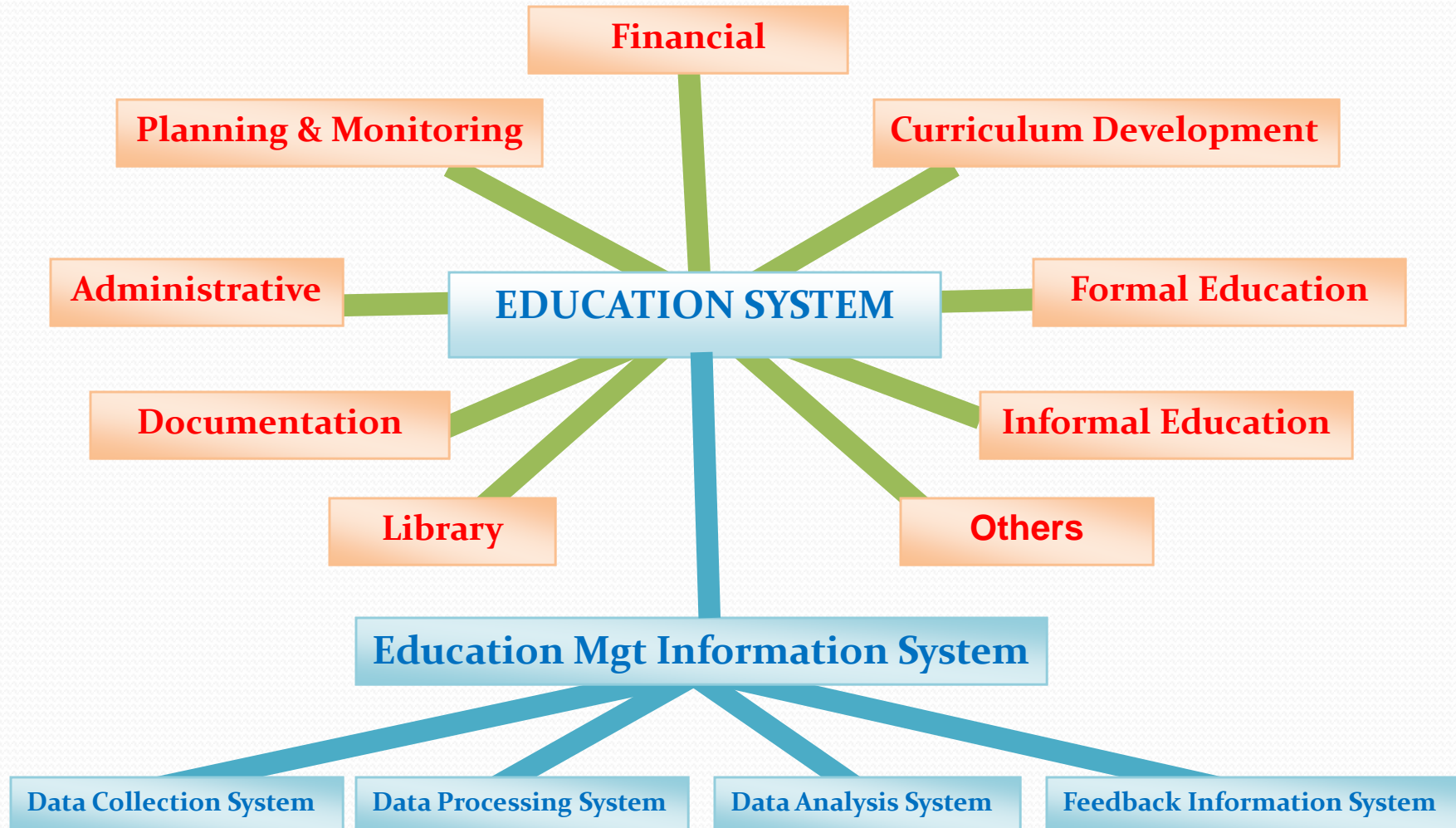
- Organizations may not get information as they wish or information is not available as needed. This indicates the non-existent of information or the difficulty of obtaining information as it is wished to be at a particular time and space. This is the time dimension of information.
- The effort that is required to get the information may be too large or too costly. For these reasons firms may not be interested in finding the information because it is beyond their capacity.

Reasons for not making decisions on perfect information

- The information may be available but we may not know the place where we can find it or we may lack the knowledge on how to use the information for our purpose.
- The information can be available as well as we may know where we can find the information, but the problem is that maybe we may not find it in the format we need it to be. This is the difficulty of obtaining relevant information to the problem in question.

Education – A System

Education is a system composed of large number of sub-systems that could be grouped in various categories. Some of the subsystems are:



Education – A System

- It is not the working of one part that will lead to a desired result. It requires good output from the whole.
- It is only when the system as a whole functions properly that we get what we supposed to achieve, i.e. an efficient result and an efficient accomplishment of our vision

Education Management Information Sub-System as a System

- Education Management Information system involves a system of:
 - Data collection
 - Data processing
 - data analysis
 - Publication and
 - Dissemination
- Educational feedback, research, monitoring and evaluation; and the management of educational information and other development programmes shall be incorporated as part of the system thinking approach.
- It is a coordinated system that pulls together human and material resources to achieve the desired results.

Education Management Information Sub-System as a System

- The practice in a system thinking approach is to start by looking at the future, the outcome or vision. The products or outputs we foresee are considered first, rather than looking at today's plans and programs, and walking through the process and considering the output last of all.
- Having considered the future, today's status is assessed, taking into account the environment and feedback information, and then through the alignment of delivery and adjustment of people. This is not a one man show; it needs to be correctly understood and supported by those all who take up the initiate.

ECS initiative for information management (Database ...)

There is a long time desire at ECS to have a database for all the activities of the Ethiopian Catholic Church. Its goals and objectives could be summarized as follows:

Goals:

To Promote the use of information to organizational development for decision making practices

Objectives:

- To collect, organize, and report accurate, relevant, and timely data for planning and decision making purposes
- To promote the use of information, both internally and externally, by increasing its quality
- To create a network of users and procedures and increase the role of information in organizational development
- To cultivate the ability of information system workers in the areas of data collection, data processing, data analysis and use of information, and managing, monitoring, and evaluation of the information system activities

ECS initiative for information management (Database ...)

- Recently it is planned that each unit of ECS collects data from the Dioceses regarding its respective activity. The collected data will finally be uploaded to the ECC national level database. A Diocesan database will also be established based on their Diocesan data.
- With this activity it is hoped to establish a major source of data which in the long run will produce information. With the success of the establishment of a national database it is to hope that the number of staff of the unit and the various activities supposed to be developed in the unit will grow.

ECS initiative for information management

(Database ...)

Hence, the unit will be capable of generating a sustainable and self sufficient center for the provision, development and maintenance of organizational information system.

By that time it is hoped to carry out successfully and efficiently:

- Data collection activity
- Organizing, processing, compiling, and cleaning of data
- Analysis, interpretation, and use of information
- Publication, distribution, and dissemination of the outputs to users of information
- The overall management and planning of Information management activities, and the promotion of decision making support systems
- Monitoring and evaluation of Management information system activities
- Training of all level management information system personnel

Challenges in establishing a national database

- **Awareness:** one of the main challenges is lack of awareness regarding the importance of a database, information system, etc...
- **Budget allotment:** there is lack of willingness on the part of decision makers to allocate the necessary budget for establishing database and an information system
- **Personnel shortage:** there is shortage of trained personnel at national and diocesan level

We hope that ECS/DCSs will achieve the goal upon overcoming these challenges

Summary and Conclusions

Establishing and strengthening ECC database, and so the information management system is effectively achieved:

- When the top decision makers realize the huge importance of these activities.
- When a dedicated and willing staff (Unit), working on information management is established (a key requirement for the system to function properly).
- When the ability of all the staff to use the system thinking approach of looking into the future, working back through feedback information, assessing the current state, and planning well with good grasp of the environmental factors taken into account is realized (indispensable).
- Then, the role of the unit working on information management will be to strengthen National and Diocesan capacity to provide accurate, timely, and relevant information for the decision makers.

Summary and Conclusions

In order to be able to do that;

- Build a sound vision to develop an information system that supports the overall development of the whole system and in particular that of Education system.
- Work and hold dialogue with partners that are users of information and learn from them on a continuous basis.
- Plan the planning of change management effectively, implementing the plan, and developing the ability to learn during this process for the benefit of all the staff and user community as a whole.

Summary and Conclusions

Note that:

- The quality of the products we generate will have a far bigger impact than we can anticipate in catching the attention of users and drawing them towards information use.
- The more information is used the stronger the demand for it will grow and, the better will be the decision made.
- Hence, ECS, its Units and the staff; and the Diocesan Secretariats have to aim at and prove that a proper and functional Information Management System is in place for the common **Goal**. i.e. **To Promote the use of information to organizational development for decision making practices.**



THANK YOU