UNIT 2 MONITORING

Structure

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2.1 INTRODUCTION

Projects are the 'cutting edge' of urban development. The most difficult single problem of project managers is the proper implementation of urban development programmes and projects. However well a project has been conceived and planned, if the implementation is not proper, it will result in inefficient and wasteful loss of scarce resources. India has been a fore runner in formulating enormous number of programmes and projects for urban development. Review of these projects suggests that monitoring and appropriate mid course corrective measures are central to achieving project goals. In the light of the above, Monitoring and Evaluation (M&E) is increasingly recognized as an indispensable tool of both project and portfolio management. There is a wide felt need to improve the performance of development projects. M&E provides a basis for accountability in the use of development resources and is an integral and important part of the project cycle. No project can be complete or successful without a proper M & E. According to World Bank (2004) M&E of development activities provide government officials, development managers and civil society with better means for learning from past experience, improving service delivery, planning and allocating resources, and demonstrate results as part of accountability to key stakeholders. Within the development community there is a strong focus on results – this helps explain the growing interest in M & E.

After studying this unit, you will be able to:

- explain what, why, when and how of monitoring.
- identify key elements in monitoring.
- discuss various types of monitoring.

2.2 MEANING OF MONITORING

The word "monitor" is derived from the Latin word meaning to 'warn' and "evaluate" stems from the word 'value'. *Monitoring* is an integral and important part of a management information system. Managers require information to keep

track of development programme, to guide its course of action. *A management information system* is a scheme by which the "right" information is obtained in the right amount, at the right time and is made available to the right person or persons. An information system is usually created in organizations to cater to the information needs of management.

Management information system include six kinds of information: (1) diagnostic information (why a situation is as it is), (2) implementation information (physical and financial or input information), (3) utilization information, (4) impact information, (5) situation information, and (6) information for review.

A monitoring system is a subsystem of a management information system and has several distinguishable components. Top management receives information from the monitoring unit and from other formal and informal sources. This influences programme implementation, leads to better programme planning, and ensures sustainability of programmes. Ultimately this leads to institutional development.

2.3 MONITORING: WHAT, WHY, WHEN AND BY WHOM

Monitoring is a continuous / periodic review and surveillance by the project management, at every level of the implementation of an activity to ensure that input deliveries, work schedules, targeted outputs and other required actions are proceeding according to plan. Availability of a 'plan' is a pre-condition for monitoring.

Another way of defining Monitoring is that it is a process of measuring, recording, collecting, processing and communicating information to assist project management decision-making. To be precise and brief, "monitoring system is an information system for management decision making".

According to Shapiro "Monitoring is the collection and analysis of information as a project progresses. It is aimed at improving the efficiency and effectiveness of a project or organization. It is based on targets set and activities planned during the planning phase of work. It helps to keep the work on track and can let management know when things are going wrong. If done properly, it is an invaluable tool for good management and it provides a useful base for evaluation."

According to PSO "Monitoring is the systematic collection, analysis and use of information from projects and programmes for these basic purposes: (i) learning from the experiences acquired (ii) accounting internally and externally for the resources used and the results obtained and (iii) taking decisions."

Thus, monitoring is a management function, which begins with the start of a project and ends with the completion of the project, but it is a continuous process during the implementation of project. The key requirement for Monitoring is an 'ACTION PLAN' without which monitoring is not possible. The whole gamut of monitoring is explained in the Table 2.1

Table 2.1: Gamut of Monitoring

What?	Check, review, overview, keep track, observe, control, guide, correct, inspect, supervise, verify, feed-back, follow-up of the	progress of programme implementation with reference to action plan.
Why?	To ensure successful implementation of the project by identifying shortfalls, deviations, problems and the reasons thereof to	take appropriate corrective/ remedial action to keep the project on track.
When?	During the implementation of the project continuously/ periodically	from inception till completion of the project (concurrently with project implementation).
Who?	By the project management team at different levels	including beneficiaries (participatory monitoring).

A project's operation, performance, and impacts are the aspects of concern in monitoring with a view to keep track on the technical and economic 'efficiency' of the project. This is carried out in terms of:

- Whether the various tasks are carried out according to schedule;
- Whether project results are likely to lead to realization of project objectives; and
- Whether project objectives / targets / execution needs adjustments.

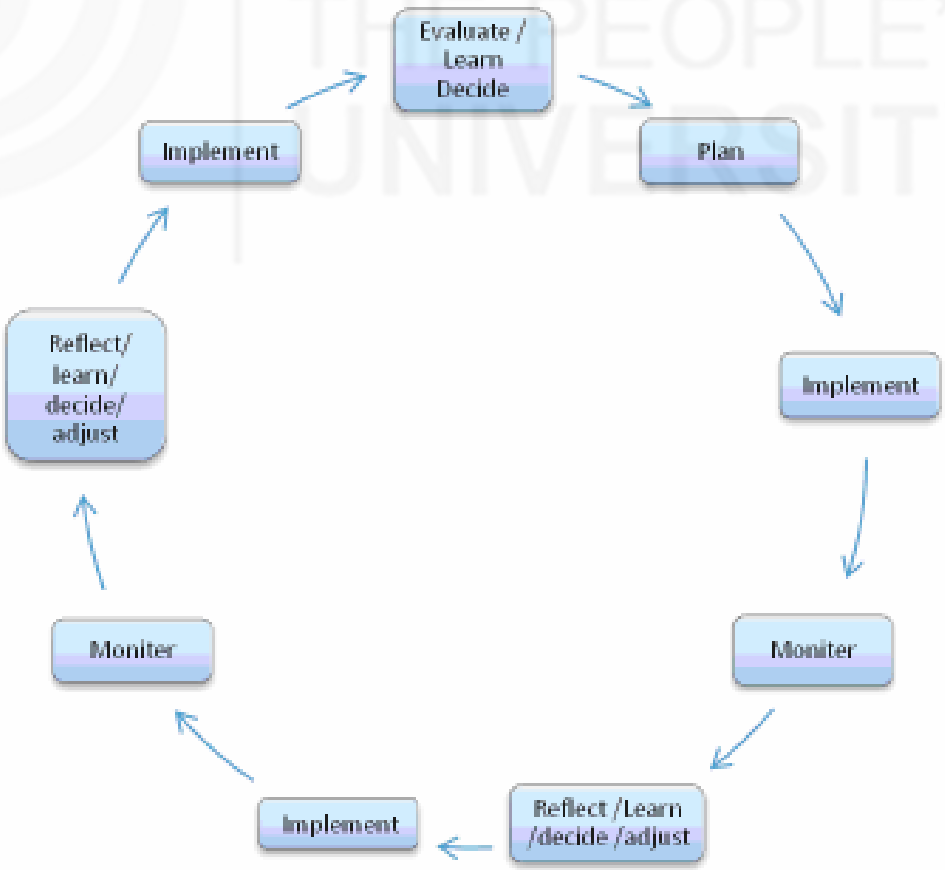

Fig. 2.1 : Monitoring and Evaluation Cycle (*Source: Shapiro, J. Monitoring & Evaluation*)

Monitoring, therefore, is an essential tool for successful implementation of a project. During the process of monitoring, we identify the shortfalls, deviations and problems and causes for the same to take appropriate remedial /corrective action.

Since monitoring is a management function, all those who are involved in the project implementations (who constitute the project management team at different levels / sectors) will do the monitoring. This may include, even the beneficiaries when local groups / organizations have been formed as part of project strategy (e.g.: Urban Forest Committees and Forest Protection Committees under JFM, Water Users Committee, Education Committees, User Groups, Self Help Groups, etc). It is important to appreciate that monitoring is not an individual's function but a collective function. When all stakeholders, including beneficiaries are involved in monitoring, then it paves way for participatory monitoring. A monitoring and evaluation cycle is given in Fig. 2.1

Till now you have read about the meaning and scope of monitoring, various gamuts of monitoring and monitoring and evaluation cycle. Now answer the questions in Check Your Progress-1.

Check Your Progress 1

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you men by monitoring?

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2) What is the role of monitoring in management information system (MIS).

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2.4 BASIC CONCEPTS AND ELEMENTS IN MONITORING

2.4.1 Basic Concepts in Monitoring

Four concepts are basic to monitoring and evaluation. They correspond, respectively, to operational investment (e.g., investment per family), operational efficiency (e.g., the number of visits, meetings, demonstrations, and trials, per development worker), technical efficiency (e.g., output, and value added), and extension-induced changes (e.g., income, and income distribution) (Ruthenburg, 1985, p. 120).

Capability, effectiveness, and efficiency fall in the monitoring domain. Impact falls in the evaluation domain.

i) **Capability** is the command that programme has over physical, financial, and human resources, enabling it to serve its clients (e.g. mothers, children). It is reflected by outreach, intensity, technical competence, and physical and financial resources.

ii) **Effectiveness** is defined as "the degree to which goals are attained". It is the adequacy of endeavor to accomplish a purpose for producing intended or expected result. Every developmental project has to take into consideration the effectiveness in order to produce desired result with the given time period. Monitoring the project effectiveness is quite crucial.

iii) **Efficiency** means functioning in the best possible manner with the least waste of time and effort. Lon Roberts defines efficiency as "to the degree of economy with which the process consumes resources especially time and money". Monitoring of efficiency is essential as it will check wastage of resources and ensure completion of project in right time.

iv) **Impact** can be measured by a simple indicator, like Infant Mortality Rate (IMR), Maternal Morality Rate (MMR), Minimum Levels of Learning (MLL), and Learning Achievement, etc. Such indicators provide ultimate tests for the success of any sectoral programmes.

2.4.2 Basic Elements in Monitoring

Let us now discuss in detail the various elements of monitoring. In the study of Monitoring and Evaluation, the following basics (structure of a project) need to be understood clearly. To begin with, the purpose of a programme is to convert a set of RESOURCES into desired RESULTS.

Resources are INPUTS and results are OUTCOMES (This term is used here in a generic sense though it has more specific connotation which will be discussed later). Inputs to outcomes happen in a sequence as detailed below:

i) **Input:** Goods, Funds, Services, Manpower, Technology and other resources provided in a project with the expectation of OUTPUTS.

ii) **Results:** Certain things happen immediately, and certain things ultimately, while certain things in between these two (intermediate). According to sequence, the result of a agriculture project can be grouped into three broad categories, such as productivity, production and income.

iii) **Output** (Immediate results)**:** Specific products or services, which an activity is expected to produce from its inputs in order to achieve the set objectives (in case of agriculture it will lead to increased irrigation, fertilizer use, health facility created etc).

iv) **Effect:** Outcome of the use of the project outputs above the realization of expected effects in a project will lead to desired impact – Intermediate results. In the recent M & E literature effects, are described as outcomes.

v) **Impact:** Outcome of Project Effects (broad long term objectives: Standard of living and reducing poverty both at individual and community level) - Ultimate results. Impact is described as the outcomes for a community or region than on individuals. It may include direct and indirect as well as primary, secondary and tertiary level.

In any project, this sequence (input - output- effect (outcomes) - impact) is inbuilt, ensuring that these steps occur is a primary 'condition' for the success of a project. Again, all projects are made on certain 'assumptions' i.e. if we provide inputs, recipients will use it properly, and produce necessary outputs so that the outputs will result in increased income and the income will boost the standard of living of people. There are also other factors like vagaries of monsoon, price fluctuation, changing political environment, etc., which are described as 'risks' that will affect the project outcomes. It is, therefore, necessary to evolve a mechanism in every project that necessary conditions prevail, assumptions come true and effects of risk are reduced by providing cushions for the shock. Such a mechanism is called 'Monitoring'.

2.5 TYPES OF MONITORING

Monitoring can be divided into two types, likely:

i) **Beneficiary Contact Monitoring:** Beneficiary Contact Monitoring is the key to successful overall project monitoring. Physical and financial monitoring — the first main component of a management information system - generally measures a project's provision and delivery of services and inputs. But project managers also need to know whether their services are being accepted and how they are being integrated into.

Beneficiary contact monitoring is taken up:

- To maintain records for each participant (feasibility of Credit, Health, Education, Nutrition and similar projects) and to analyze these periodically to monitor the penetration of the service and the establishment of a clientele.
- To establish a regular schedule of surveys to enable managers to measure the progress of a project and the responses of its beneficiaries. Formal sampling techniques must be used to get statistically significant data from these surveys.
- To use informal interviews to alert managers to outstanding success stories or problems.

ii) **Process Monitoring:** As discussed earlier, project implementation begins with deployment of inputs/ resources to realize some specific outputs. The

conversion of inputs into outputs will involve certain methods, activities, and completion of certain events. This happens in a sequence as below.

Process: It is the way in which activities are conducted. Processes are continuous and cuts across activities. For example rapport building as a process is relevant to SHG formation activities, training, etc.

Milestones: These are a series of achievements that leads to a completion of stage in an activity (an event).

Activities: These are what we do to deliver the output. Activities always have a beginning and an end and are associated with numbers linked to a budget.

Output: This is what a project delivers before the close of the project.

Process monitoring is an approach that ensures that processes are steered to achieve the desired results and that quality is maintained throughout. As long as there is a focus, not only on the inputs and outputs, but the way in which the outputs are being delivered, and quality indicators are devised and tracked, process monitoring would be useful and successful.

Process monitoring is often confused with conventional progress monitoring. Conventional progress monitoring focuses on physical, financial and logistic aspects of projects, while process monitoring deals with critical processes, which are directly related to the project's objectives. For example, progress monitoring looks at the number of training sessions held, or the / percentage of work completed on a water supply scheme; while process monitoring evaluates the quality of training or the level of community involvement in identification, design, site selection, and supervision of construction. An ideal M&E system contains elements from both progress and process monitoring.

Process monitoring informs project management of the nature of changes needed to improve project responsiveness to community demands, maximize impact and improve the likelihood of sustainable outcomes. It evaluates the quality and effect of project interventions and outcomes.

2.6 TOOLS AND TECHNIQUES OF MONITORING

2.6.1 Tools of Monitoring

Broadly, following tools are used for the purpose of monitoring:

i) Regular progress report

Progress reports submitted by field staff and records at District and Block levels should contain physical and financial progress vis-à-vis targets, coverage by blocks, composition of groups (SC/ST/ Others), activities, etc.

From the financial and physical progress report, it is often possible to make a rapid assessment of whether, and to what extent, the original activities of the scheme have been fulfilled, and whether it is working successfully within the allocated budget. Disbursement of funds for the scheme can be matched against other data/schemes.

ii) Monitoring staff performance (review)

Monitoring the staff performance can ensure that individuals are effectively employed to fulfill given tasks. Ideally, all those employed in a project should meet regularly, to discuss their progress, and match this against targets and objectives, and discuss problems and possible changes.

iii) Tour reports by field staff

Often, the most useful information about qualitative aspects of a programme are obtained from the tour reports submitted by field staff; this is especially true in the case when the project is very small and the participants may possess only low levels of education and literacy.

iv) Participant observation

The field staff may stay in the villages and observe the groups closely so as to obtain sensitive, first-hand insights.

v) Reports from visitors

The project staff ensures that all visitors to the project area (Project Director, State Level Officials, Researchers, etc) provide a short report on their impressions of the schemes. These can provide insights/information on new developments, exchange of experiences and help in further developing the programme.

vi) Interviews

Group members and community leaders should be interviewed on their attitude towards the scheme and resultant behavioral changes.

vii) Participatory Monitoring

In this latest technique, the beneficiaries themselves are made partners in monitoring and evaluation. Project staff and beneficiaries discuss and assess the performance together, in order to understand how they have performed, what the problems are and what the future holds for them. The project staff mainly plays a guiding role to formulate appropriate questions and eliciting answers. For example, the group can be prompted to draw inferences from the bank record books, savings books, etc.

viii) Key informants

In addition to our regular contacts, we must try to interact with other people who may be useful sources of information e.g. Teachers, Postmaster, Kirana Shop, SHGs etc.

ix) Complaints / grievances

Many a times, complaints and grievances petition from people in general and target group in particular may throw some light on the actual performance of the scheme. Every project should make provisions for such source of information as part of monitoring mechanism.

2.6.2 Techniques of Monitoring

Broadly following two techniques are used in monitoring:

i) Earned Value Analysis (EVA); and

ii) Critical Ratio Technique (CRT)

i) Earned Value Analysis: Is a way of measuring overall performance by using an aggregate performance measure. The earned value of work performed for those tasks in progress found by multiplying the estimated percent physical completion of work for each task by the planned cost for those tasks. The result is the amount that should be spent on the task so far. This can be compared with actual amount spent.

The methods of estimation usually used are**:**

a) The 50-50 estimate. 50% is assumed when task is begun and remaining 50% when work completed.

b) 0-100% rule: This rule allows no credit to work until task is completed. This is a highly conservative rule, which cause in delay in project work.

c) Proportional rule: This rule divides planned time-to-date by total scheduled time to calculate percent complete. This is commonly used rule.

ii) Critical Ratio Technique: is applied in large projects, in which critical ratio is calculated for all project activities. The formula used for the calculation of critical ratio is:

$$\frac{\text{Actual Progress}}{\text{Scheduled Progress}} \times \frac{\text{Budgeted Cost}}{\text{Actual Cost}}$$

If ratio is 1, everything is probably on target and if the ratio is further away from 1 it requires more investigation.

In this section you have read about the concepts, elements, types and techniques of monitoring. Now try and answer the questions in Check Your Progress-2.

Check Your Progress 2

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Write the differences between effectiveness & efficiency of Monitoring?

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2) Name different techniques and types of Monitoring?

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3) What do you mean by participatory monitoring?

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2.7 INDICATORS OF MONITORING

There are different types of indicators, for example, socioeconomic indicators, development indicators, and extension indicators. They range from general to specific concerns.

Indicators can be categorized into direct and indirect or proxy indicators, single and unitary or composite indicators; quantitative and qualitative indicators; primary, core, and supplementary indicators, input and output indicators; and monitoring and evaluation indicators.

Broadly following types of indicators used in monitoring

i) Quantitative indicators

Provide numeric information about a change in a situation. For example, centimeters of rainfall last quarter, number of people using metro etc.

ii) Qualitative indicators

Are largely descriptive statements about processes and outcomes. For example, what is the level of participation in meetings? How are community needs assessed?

iii) Direct indicators

Provide information, which expressly relates to what is being measured. If, for example, information functioning of urban local bodies is required then their functioning is measured.

iv) Indirect indicators

Essential information, chosen from amongst many types of information to serve as substitutes (or proxy indicators) for answering questions or responding to statements that are difficult to measure. For example, if we are interested in measuring the level of poverty in a community, instead of choosing direct indicators for income, indirect indicators for poverty may be chosen, e.g. persons are poor if they have to hire themselves out as daily unskilled labour.

v) Process indicators

Steps involved in planning, designing, collecting funds, construction and operation and maintenance (O&M) of a water supply scheme for example, are the processes involved in developing water supply infrastructure. Examples of process indicators are level of participation and inputs of community during planning.

vi) Progress indicators

Seek to measure or monitor changes against stated targets. The number of trees planted, percentage of water supply scheme constructed, and O&M training sessions held are examples of progress indicators. Progress indicators are usually but not always expressed in quantitative terms.

Monitoring vs. Progress Reporting

Sometimes monitoring and progress reporting are misunderstood to be one and the same in view of certain common features. The similarities between the two are:

a) Both are organized and systematic flow of data of different technical/ administrative operations in progress;

b) Both can be quantitative and qualitative in their approach. But there are distinct differences between them.

Progress reports is a statement of facts giving the extent of achievements at any given point of time. The progress report may not explain how and why of deviations in achievements. When we start questioning such deviations monitoring mechanism gets activated. Thus progress reporting is an Important and initial tool in monitoring but not an end.

In this section you have read about types of monitoring indicators and differances between monitoring and progress reporting. Now try and answer the questions in Check your progress 3.

2.8 LET US SUM UP

Monitoring is an important aspect of project management system. It is a continuous activity for the project manager. This unit has dealt with in detail why, what, when and who of monitoring. Further a detailed analysis of indicators of monitoring is discussed. In the last session the differences between monitoring and progress reporting has been highlighted.

2.9 REFERENCES AND SELECTED READINGS

ADB (2002), *Project Performance Management System Operations Manual,* Section 22. PACS Series, New Delhi.

Casley, D.J., & Kumar, K. (1987), Project *monitoring and evaluation in agriculture*, Johns Hopkins University Press (published for the World Bank), Baltimore and London.

Casley, D.J., & Lury, D.A (1987), *Monitoring and evaluation of agriculture and rural development projects,* Johns Hopkins University Press (published for the World Bank), Baltimore and London.

Cemea, M.M., & Tepping, B.J. (1977), A *system for monitoring and evaluating agricultural extension projects.* World Bank Staff Working Paper No.272. DC: World Bank, Washington.

Chalmers, James (2002), *How to managing projects*, Jaico Publishing House, Mumbai.

Davis-Case, D. and P Grove (1990), *The Community's Tool Box: The Idea, Methods, and Tools for Participatory Assessment, Monitoring and Evaluation in Community Forestry*, FAO, Rome.

Davis-Case, D'Arcy. (1990), *Community Forestry. Participatory Assessment, Monitoring and Evaluation*, FAO, Rome.

Dennis J. Casley & Krishna Kumar (1989), *The Collection, Analysis and use of Monitoring and Evaluation Data.* The World Bank.

Dennis J. Casley & Krishna Kumar (1990), *Project Monitoring and Evaluation in Agriculture,* The World Bank.

Development Alternatives (2008), *MEAL Manual for Civil Society Organisation. Monitorign Evaluation*

Feuerstein, Marie-Therese (1986), *Partners in Evaluation. Evaluating Development and Community Programmes with Participant,* Mac Millan Education Ltd, Hong Kong.

Gosling, Louisa and Mike Edwards (1995), *Toolkits: A Practical Guide to Assessment, Monitoring, Review and Evaluation.* Save the Children, London.

Guijt, I. (1998), *Participatory Monitoring and Impact Assessment of Sustainable Agriculture Initiatives: An Introduction to the Key Elements.* Discussion Paper No.1, Sustainable Agriculture and Rural Livelihoods Programmes, IIED, UK: IIED.

http://Inweb18.worldbank.org/oed/oeddoclib.nsf/24cc3bb1f94ae11c85256808006a0046/ a5efbb5d7

http://www.adb./org/Documents/Manuals/Operations/om22.asp.

Jody Zall Kusek and Ray C. Rist (2004), *Ten steps to a results-based monitoring and evaluation system: a handbook for development practitioners*, D.C: World Bank, Washington.

Lee, J.W (1990), More *than Accountability: Evaluating Agricultural Extension Programmes.* TRDC Publiation No.172. Armidale, Australia: University of New England, Rural Development Centre.

Misra, DC (1999), *Monitoring Extension Programme and Resource,* Chapter 17 in Improving Agricultural Extension; A Reference Manual: Ed: FAO, Rome.

Murphy, J., & Marchant, T.J. (1988), Monitoring *and Evaluation in Extension Agencies,* World Bank Technical Paper No.79, DC: World Bank, Washington.

Participatory Monitoring and Evaluation (1990), *A Handbook for Training Field Workers,* 1998 Bangkok: Regional Office for Asia and the Pacific (RAPA), FAO.

Ruthenberg, I. (1985), *Innovation Policy for Small Farmers in the Tropics: The Economics of Technical Innovations for Agricultural Development,* Oxford University Press.

Shapiro, J. "Monitoring and Evaluation", http**://**www.civicus.org/new/media/monitoring

Slade, R.H., & Feder, G (1985*), Training and Visit Extension: A Manual of Instruction (mimeo),* Washington, DC: World Bank.

World Bank (2004), *Monitoring & Evaluation: Some Tools, Methods and Approaches,* Washington, DC: World Bank.

2.10 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

1) The word "monitor" is derived from the Latin word meaning to 'warn' and "evaluate" stems from the word 'value'. Monitoring is a process of measuring, recording, collecting, processing and communicating information to assist project management decision-making.

2) Monitoring role in management information system include six kinds of information: (1) diagnostic information (why a situation is as it is), (2) implementation information (physical and financial or input information), (3) utilization information, (4) impact information, (5) situation information, and (6) information for review.

Check Your Progress 2

1) Effectiveness is the degree to which geals are attained whereas efficiency means functioning in the best possible manner with the least waste of time and effort.

2) The following techniques are used for the purpose of monitoring. Like, regular progress report, monitoring staff performance, tour report, participants' observation, and reports from visitors, interviews, participatory monitoring, key informants and complaints or grievances petitions.

   Monitoring are of two types. (i) Beneficiary contact monitoring and (ii) process monitoring

3) In this latest technique, the beneficiaries themselves are made partners in monitoring evaluation. Project staff and beneficiaries discuss and assess the performance together, in order to understand how they have performed, what the problems are and what the future holds for them. The project staff mainly plays a guiding role to formulate appropriate questions and eliciting answers.