Water Resources Planning
Types of Planning

1. in terms of the process

- **Linear planning** (old approach)
  The major components of water master planning: water resources, water demand analyses, system design and socio-economic justification follow each other **Sequentially**

- **Cyclic planning** (new approach)
  The sequence of the activities of the planning components is repeated several times (Inception, Mid-term, Draft Final, Final Plan)
Advantages of Cyclic Planning

- Full picture of potentials and impacts can be already be obtained at early stage in the process
- Ensure the expectation will be adjusted accordingly
- Ensure the implementation of realistic scenarios
- Allows better involvement of stakeholders
- Create more possibilities to analyze the carrying capacity of the system
2. in terms of the scope of planning

- **Single purpose plan**
  It has to do with single activity such as water supply or irrigation or flood control....etc

- **Multi purpose plan**
  It aims at satisfying a number of purposes at the same time, such as irrigation, hydropower, water supply, environmental management

- **Master plan**
  - Some what old-fashioned type of plan, it is formulation of a phased development plan
  - It used to exploit the opportunities for single and multipurpose water resources projects in a defined geographic area over a specific period of time *(Stormwater Master Plan for Gaza City)*
2. In terms of the scope of planning

- **Comprehensive or integrated plan**
  - It is multi-unit, multipurpose and multiobjective plan
  - It include economical, financial, political, social, and environmental objectives
  - Consider both structural and non-structural (institutional) alternative
  - It does not include feasibility studies of individual projects
2. In terms of areal extent

- **National Plan**
  - To determine the national priorities for the allocation of scarce water resources in view of the national objectives and constraints (National Water Plan)

- **Regional Plan**
  - At regional level which depend of the country
  - In principle it does not differ from a national plan

- **River Basin Plan**
  - It use the hydrological boundaries as the planning limits
  - It is an integrated plan
2. In terms of time frame of plan

- **Short term planning**
  - Its advantages the uncertainty in the scenario is small
  - It disadvantages is the lakes vision on future development

- **Long term planning**
  - Try to set out long term perspective and guidelines for the future development of a nation, region or river basin
  - It has a large of uncertainty
  - It is a long term policy or tactical planning

- **Strategic Planning (open end approach)**
  - It is a combination of short term and long-term planning
  - Wide possible range of future option should remain open
  - A plan exclude future development options is not strategic, not flexible and not robust
Steps involved in WR Planning

- **Statement of Objectives**
  - Before any project planning, a clear-cut statement of the objectives of the projects

- **Collection of data**
  - Hydrological data
  - Geological data
  - Demographic data
  - Economic Data
  - Ecological Data
  - Public opinion and political opinion data
  - Spatial and temporal data (agriculture data, municipal and industrial uses data, pollution data)
Steps involved in WR Planning

- **Projections for future**
  - Projection of future demand based on realistic possibilities of growth
  - Unrealistic higher values of water needs may lead to overdesign and excessive investment
  - The lower values may lead to shortage of water

- **Project formulation**
  - A list of possible alternative proposal should be drawn
  - The list of the alternatives should be reduced after neglecting the high cost projects
  - The remaining alternatives should be studied and fully discussed their limitations boundary conditions and the cost (Multi-criteria analyses)
  - Final list should be comprehensive for further analyses of the project
Steps involved in WR Planning

- **Project analysis**
  - The next step to select the best of all the previous final list of alternatives based on
  - Economical (with a minimum benefit cost ratio or at least equal to 1)
  - Efficient
  - Environmentally satisfactory

- **Project implementation and authorization**
Involvement of Stakeholders

- It means the commitment of the parties involved in water resources development
- Has a great influence on the effective water resources management
- They should be involved in the planning, design, construction, and operation of the system
- They should convinced that the plan or project is their own project

Why do the projects Fail? And How we optimize the success of the projects? (Discussion)
The Reasons of Fail:

- People do not see and feel the benefits
- If the project affects their live negatively (technical or economical success of no value)
- People have no incentive for operation
- The organization responsible for operation and maintenance often does not have the financial and physical resources for run the project
- **People Participation (PP)** is not guaranteed in all steps of the plan (inception, design, implementation, monitoring, etc.)
In Short:

- Effective water resources management should have two characteristics:

1. Flexibility in approach and in planning tools
2. Involvement of stakeholders to commitment
Water Resources
Strategic Planning
Strategic thinking

It means asking, "Are we doing the right thing?". It requires three things:

- purpose or end--a strategic thinker is trying to do something
- understanding the environment, particularly of the opponent, or opposing forces, affecting and/or blocking achievement of these ends
- creativity in developing effective responses to the opposing forces.
The major assumption is that current knowledge about future conditions is sufficiently reliable to enable the development of these plans.

Planning process includes:

- Problem definition;
- Objectives;
- Development of alternatives;
- Comparison and selection of the best alternative;
- Implementation; and
- Monitoring and evaluation.
What Makes Traditional Planning Strategic?

- The major assumption in strategic planning, however, is that an organization must be responsive to a dynamic, changing environment.
- Comprehensive, multidisciplinary, integrated, sustainability-led, dynamic;
- Specific, achievable, realistic, time bounded;
- Indicators-based;
- Values-based;
- Strategic vision;
- Strategic analysis (e.g. SWOT).
Some Indicators:

- **Relevance:** The degree to which the proposed strategy/Project corresponds to the needs of the beneficiaries.

- **Impact:** The proposed strategy’s/project’s impacts on beneficiaries. What has happened (or is likely to happen) as a consequence of the project?

- **Efficiency:** The estimated quantity, quality and availability of means and resources required by the proposed strategy. The presumed cost-effectiveness of the proposed strategy in transforming the means into results.

- **Sustainability:** The likelihood of the proposed strategy to reflect the technical, social, economic, environmental and institutional sustainability.
Basic Steps in a Strategic Planning Process

Step One: Getting Ready

- A work plan includes:
  - identify specific issues or choices that the planning process should address
  - clarify roles (who does what in the process)
  - create a Planning Committee
  - develop an organizational profile
  - identify the information that must be collected to help make sound decisions.

Step Two: Establishing a reference framework

- It shall set the context, base, the general components and mechanisms of the intended strategic plan.
Basic Steps in a Strategic Planning Process

Step Three: Mission and Vision

- A mission statement typically summarizes the what, how, and why of a planning organization's work in terms of its:
  - **Purpose** - why the organization exists, and what it seeks to accomplish
  - **Roles** - the main method or activity through which the organization tries to fulfill this purpose
  - **Values** - the principles or beliefs that guide an organization's members as they pursue the organization's purpose

A vision statement presents an image of what success will look like.

- With mission and vision statements, an organization has created a shared, coherent idea of what it is strategically planning for.
Basic Steps in a Strategic Planning Process

Step Four: Assessing the existing situation

- It means obtaining current information about the baseline conditions according to the context of the plan.
- Information that will highlight the critical issues faced and that the strategic plan must address.

- The products of this step include:
  - A data base of quality information that can be used to make decisions; and
  - A list of critical issues which demand a response - the most important issues to deal with.
Basic Steps in a Strategic Planning Process

Step Five: Identifying Problems
- Needs assessment - Setting measurable targets
  - Local, regional, international standards
  - Availability of resources
  - Affordability

Step Six: Developing Goals, Objectives and Strategies
- The product of this Step is an outline of the organization's strategic directions - long-range goals, specific objectives and the general strategies, of its response to critical issues.
Basic Steps in a Strategic Planning Process

Step Seven: Strategic Analysis (SWOT)

SWOT is one of the straightforward approaches used in the analysis of strategies. The recognition of internal factors (strengths and weaknesses) as well as external factors (threats and opportunities) takes place on the basis of SWOT analysis. The greatest advantage of SWOT is that it helps decision makers survey the different potentials and accordingly initiate suitable actions.

Step Eight: Decision making/ Selection of the best strategic direction(s) or combination

Step Nine: Management plan- Monitoring, Evaluation and Feed back
SWOT Analysis

Example:
Water Sector Strategic Planning
SWOT Analysis

 نقاط القوة

• وجود الخزان الجوفي المحلي
• الموقع الجغرافي (القرب من البحر و القرب من مصر)
• وجود المصادر البشرية المتنوعة
 نقاط الضعف

■ محدودية الموارد (الكمية)
■ سوء النوعية الحالي و استمرار التلوث
■ التحكم الخارجي
■ الإدارة العليا للمصادر (المجلس الوطني للمياه و سلطة المياه الفلسطينية)
■ السياسات الخاصة بمراقبة المصادر
■ إدارة الخدمات (البلديات و مصلحة مياه الساحل)
■ أنظمة التعرفة
SWOT Analysis

opportunities

• Existence of several countries with significant potential for developing water sectors
• Political climate and role in implementing regional agreements
• Availability of new water sources
  • Possibility of large-scale projects for desalination
  • Possibility of new groundwater sources
  • Reuse of treated water for irrigation
  • Use of reservoirs for water storage
التهديدات

- الازدياد المضطرد في اعداد السكان شاملاً عودة اللاجئين
- الصراع الاقليمي على مصادر المياه
- ندرة الموارد المتوفرة
- قدرة النظام الحالي على الاستمرار في تلبية المتطلبات
- مصادر التلوث الداخلية والخارجية
- محدودية الموارد المالية لتنفيذ المشاريع الحالية والمستقبلية
- فرض سياسات دولية واقليمية
- الوضع الأمني والسياسي
- محدودية موارد الطاقة
- عدم قبول المنتفعين لسياسات إدارة مصادر المياه (اغلاق أبار زراعية مثلاً)