Multifunctional Administrative City
Construction Agency

Progress Status in the Sejong City Program Management

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Multifunctional Administrative City Construction Agency

I. Overview of Sejong City Construction

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2. Plans for Budgetary Investment
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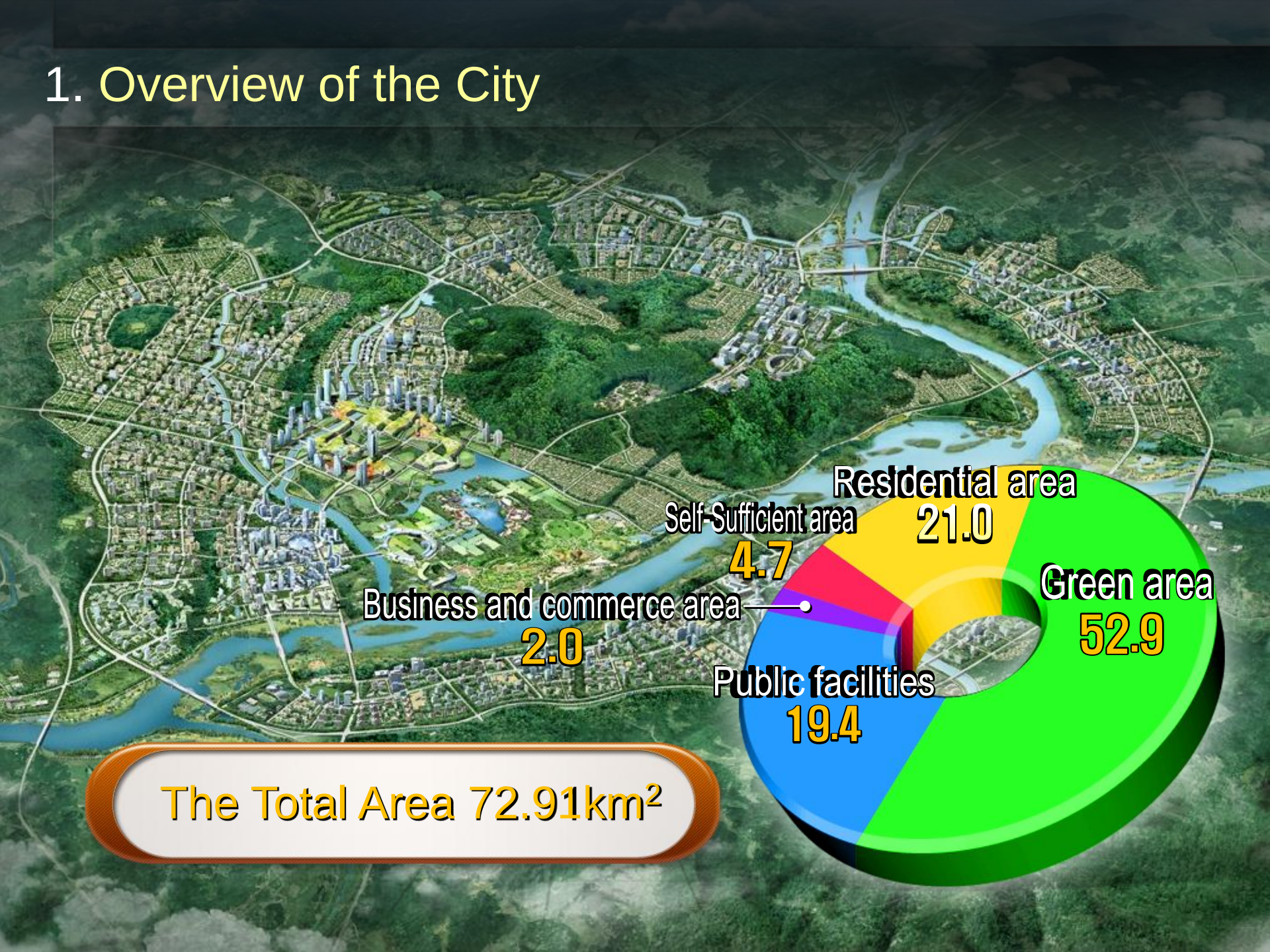
6. Progress status

1. Overview of the City

- Administrative District: Yeongi-gun, Chungcheongnam-do/Gongju City
- Size: Main area-72.91km^2 , Surrounding area-223km^2
- Population Goal: 500,000
- Locational Advantages: Located within 120km from Seoul and within 10 km from Daejeon and Cheongju. Wonsu mountain sits in the center of the city, and the Miho stream and the Geum river converge.

1. Overview of the City



2. Budget and Investment Plan

KRW 8.5 trillion

행정중심복합도시건설청
Multifunctional Administrative City Construction Agency

+

KRW 14 trillion

Land is Life
Korea Land Corporation

(Trillion Korean Won)

Type	Phase 1	Phase 2	Phase 3	Total
MACC	6.03	1.75	0.72	8.5
KLC	10.99	1.69	1.32	14.0
Total	17.02	3.44	2.04	22.5

3. Implementation Structure

Role distribution system among related authorities

2 Bureaus, 1 Department
(11 Divisions, 149 Staff)

- Overall supervision and management of the Sejong City construction project
- Development planning and approval of implementation plans
- Construction of public facilities such as metropolitan roads, city halls, and schools

※ Also playing the local governmental roles such as giving out building permits

국토해양부
Ministry of Land, Transport and Maritime Affairs

- Execution of the Special Act on Sejong City

Promotion Committee

Deliberation on major policies

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Multifunctional Administrative City Construction Agency

- Establishment and implementation of major plans
- Construction of the government complex and other public buildings

LH Land is Life Korea Land Corporation

- Site Formation and installation of infrastructures

4. Objectives of the City

- Strengthening korea's national competitiveness by leading it's balanced development
- Establishing a global and sustainable model city by improving the city quality

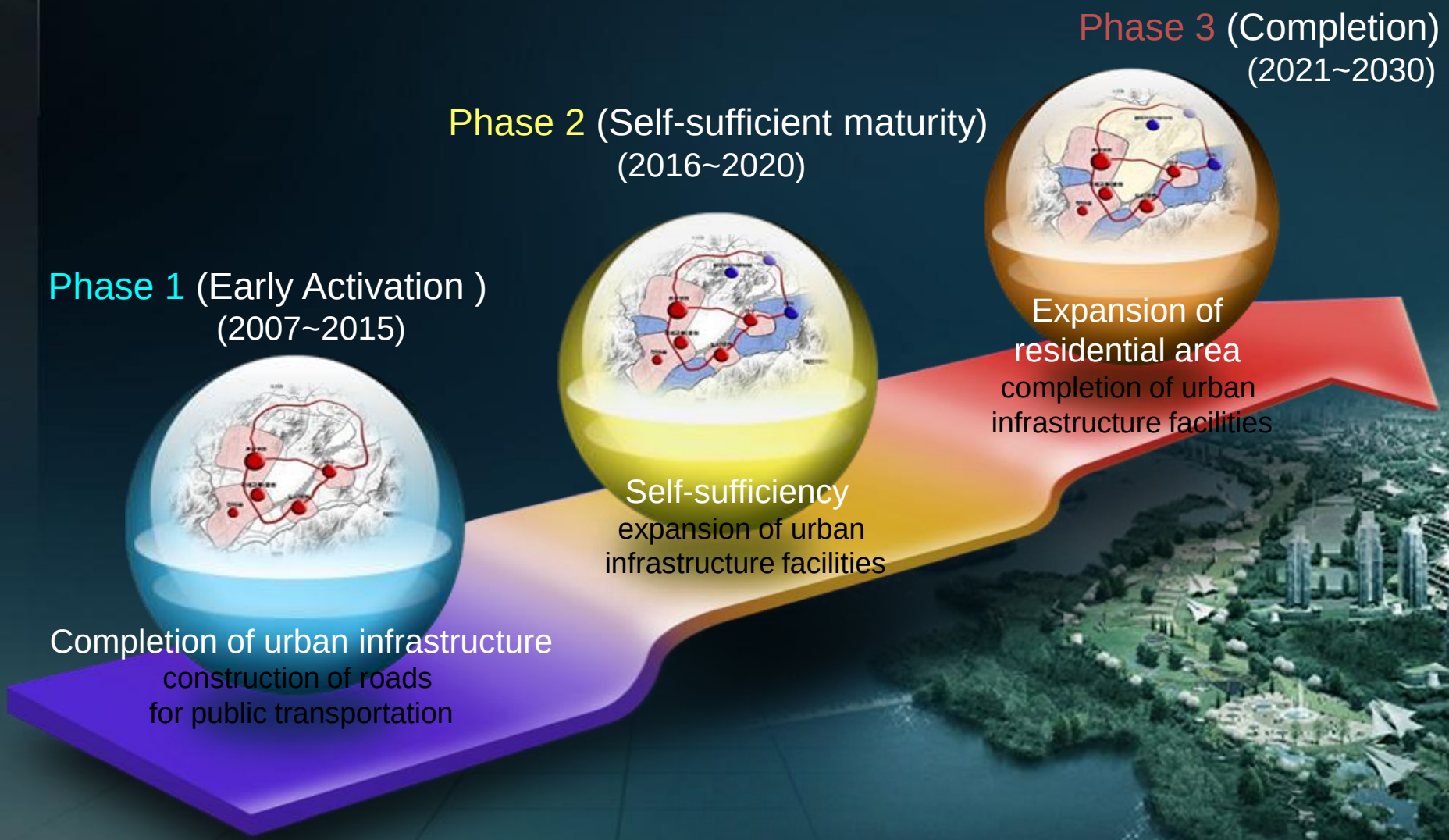
Multifunctional Administrative City

4. Objectives of the City

- A ring-shaped structure to realize balanced development
- Construction of a self-sufficient & multifunctional city with a population of 500,000 by year 2030

5. Construction Phases

- Cumulative Population
  Phase 1: 150,000 / Phase 2: 300,000 / Phase 3: 500,000



6. Progress Status

26% of the total construction in progress

II. Program Management (PM)

1. Overview of Program Management
2. Environment of Program Management
3. Elements of Program Management
4. Strategies of Program Management
5. Operation of Program Management

1. Overview of Program Management

- Purpose :
  - Minimized cost
  - Optimization in construction period
  - Maximized quality
- Phase:

Pre-Design → Design → Construction → Post-management

2. Environment of Program Management

- Management of directly ordered projects, and overall implementation of individual projects

Road

Gas

Electric

Telecom

Office Building

건설청

행정안전부

건설청직발주

지자체

기타정부기관

한국토지주택공사

전기

가스

통신

지역난방

주공

주요민간시설

기타

계약자A

계약자B

계약자C

계약자D

계약자A

계약자B

계약자C

계약자D

계약자A

계약자B

계약자C

계약자D

3. Elements of Program Management System

4. Strategies for Program Management

Mission

Successful completion of the construction of Sejong city

Goal

- Completion of the project within the government budget
- Achievement of the standard quality of a global city
- Completion of an intensive development by 2020

Strategies

Organization	Human resources	Process	System
Establishment of the status of the Construction Agency as the overall project management organization	Cultivation of professional knowledge and security of experienced human resources	Establishment of work process for scientific project management	Establishment of a system to induce participation of stakeholders

5. Program Management operation

Optimum decision-making

4,000EA Activities

III. Detailed Progress Status

1. Program Management Implementation Structure
2. Program Management Procedure
3. Work Breakdown Structure (WBS)
4. Time Management
5. Multifunctional administrative city Program Administration System (MPAS)
6. Program Management Meeting
7. Contractors' Time Management
8. Implementation of the CO_2 Reduction Monitoring System

1. Program Management System

- Based on the Special Act on the Construction of the Multifunctional Administrative Cities
- Clear and comprehensive designation of the roles of the Agency and other various project participants

Legal System

Special Act on Construction of the New City → Organization of the Construction Agency and umbrella organizations → Guideline to implement project management of The New City

Roles and Designation of Individual Project Participants

Overall Project Management System

Overall Project Management Plan → Area-specific Procedure (processing, cost, design, materials, information, measures, and WBS)

Systematic Task Operation and Achievement of Consistency

1. Program Management System

- Granting supplementary features onto the Special Act regarding Sejong City
- Setting supervisory, and responsibilities in order to manage the overall project

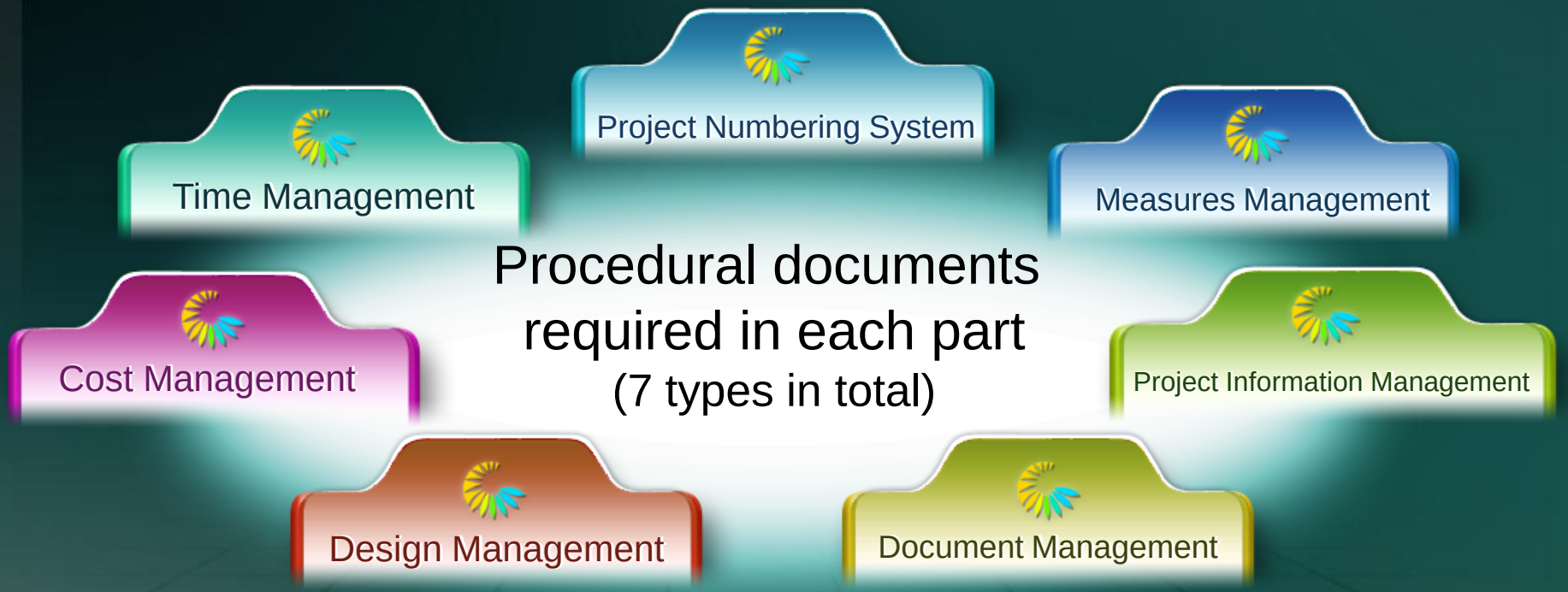
- Item 12, Article 39, Special Act (Roles of the Chairman of MACCA)
  - Supervision and management of the Multifunctional Admin. City Construction
- Article 64 (Reporting and Inspection), Article 27 (Construction Inspection), etc.
- Work Position System of the Organization, Article 7 (Infrastructure Bureau)
  - Training and supervision of project participants, management of the process of major projects, etc.

- Definition of basic requirements for project management by individual project participants
  - Designation of roles and responsibilities including reporting
- Consistency in project management and work promotion
- Establishment of effective supervision and instruction system
  - Facilitation of overall supervision and adjustment of the Construction Agency

Optimizing work process through the distribution of responsibilities and roles

2. Program Management Procedural Documents

- Used as a communicative tool among participating organizations
- Ensuring consistency in the work procedure for all participants
- Clearly dividing the work flow, responsibilities and roles among participants
- Enabling an advanced resolution of different opinions among participants



3. Work Breakdown Structure (WBS)

WBS (Work Breakdown Structure)

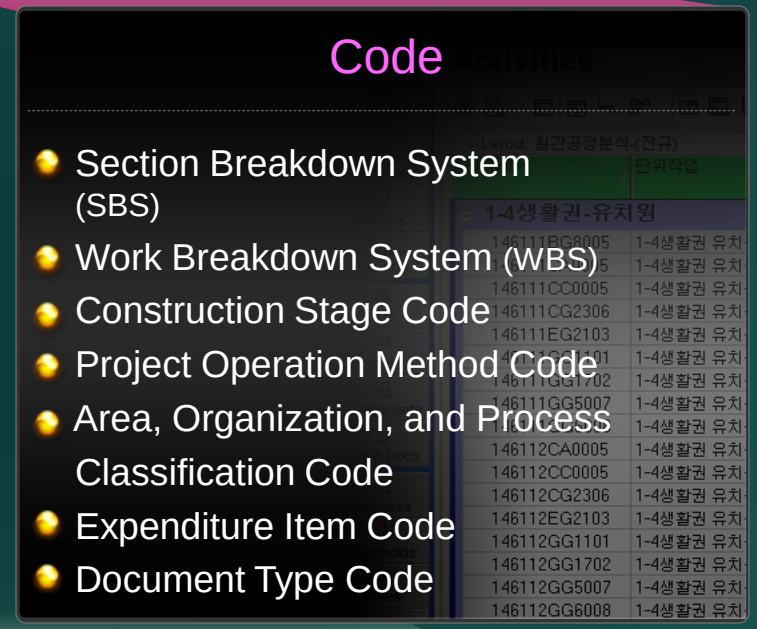
Organization of WBS

Numbering System

- Activity Numbering System(ANS)
- Project Budget Code of Account (PBCOA)
- Drawing Binder & Document Numbering System (DDNS)
- Measure Items Numbering System
- Contract Package Numbering System
- Corresponded Documents Numbering System

Code

- Section Breakdown System (SBS)
- Work Breakdown System (WBS)
- Construction Stage Code
- Project Operation Method Code
- Area, Organization, and Process Classification Code
- Expenditure Item Code
- Document Type Code

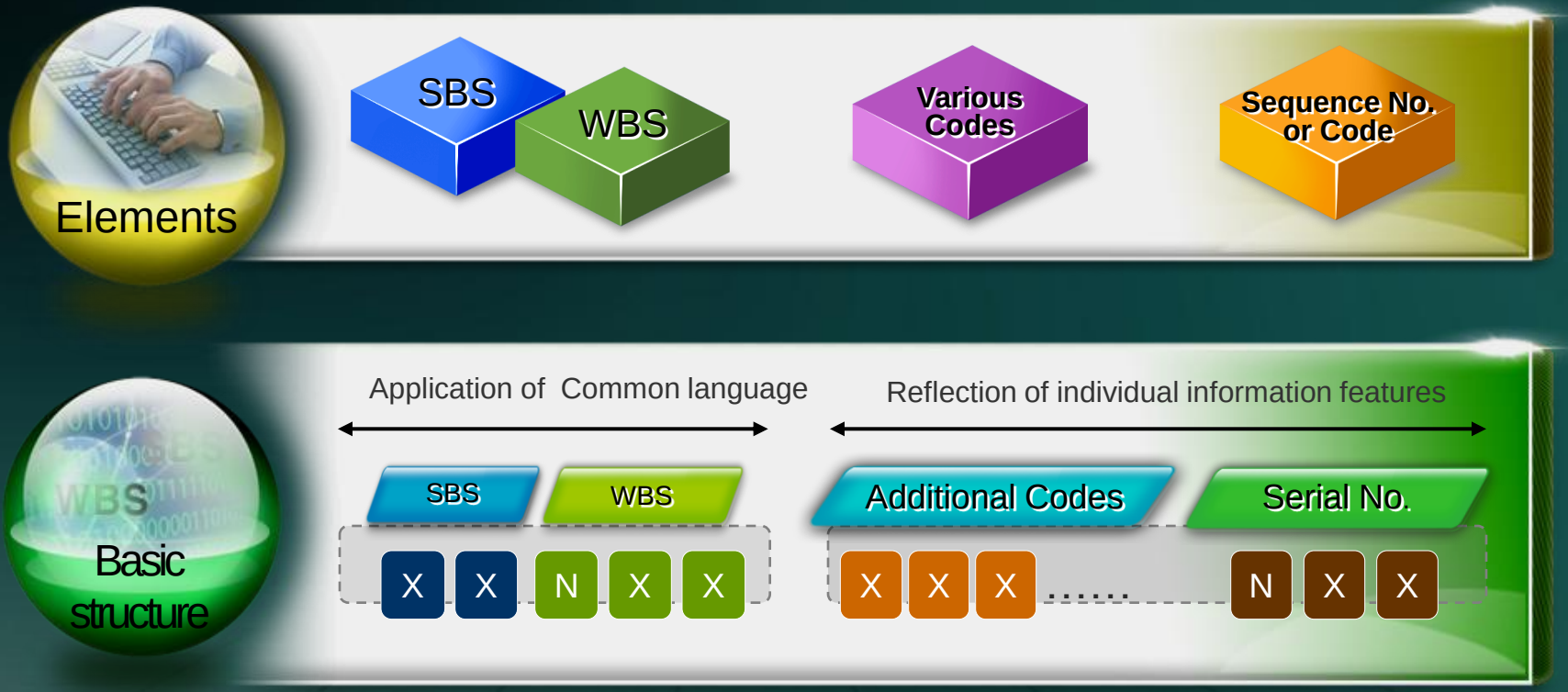


All works and facilities are coded
to enable a systemic management

3. Work Breakdown Structure (WBS)

Use of WBS

Combination of various codes such as section code and work code facilitates management of the complex information system.

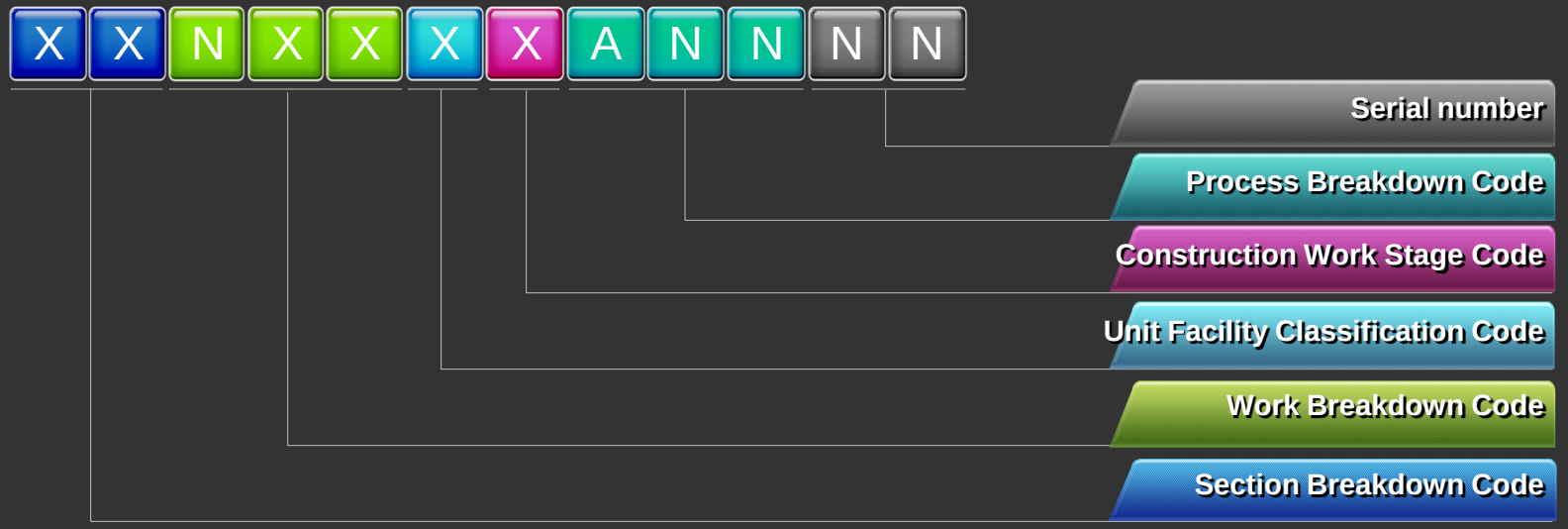


3. Work Breakdown Structure (WBS)

Activity Numbering System (ANS)

Application Standard : applied to processing activities necessary for the Integrated Project Standard (IPS)

Process Activity Code for inter-linking project expenditure and information regarding maps and documents



Example

32-521-0-C-M31-01 : 3-2 Living Zone, City Hall, Pipe Construction, Mechanic facilities construction

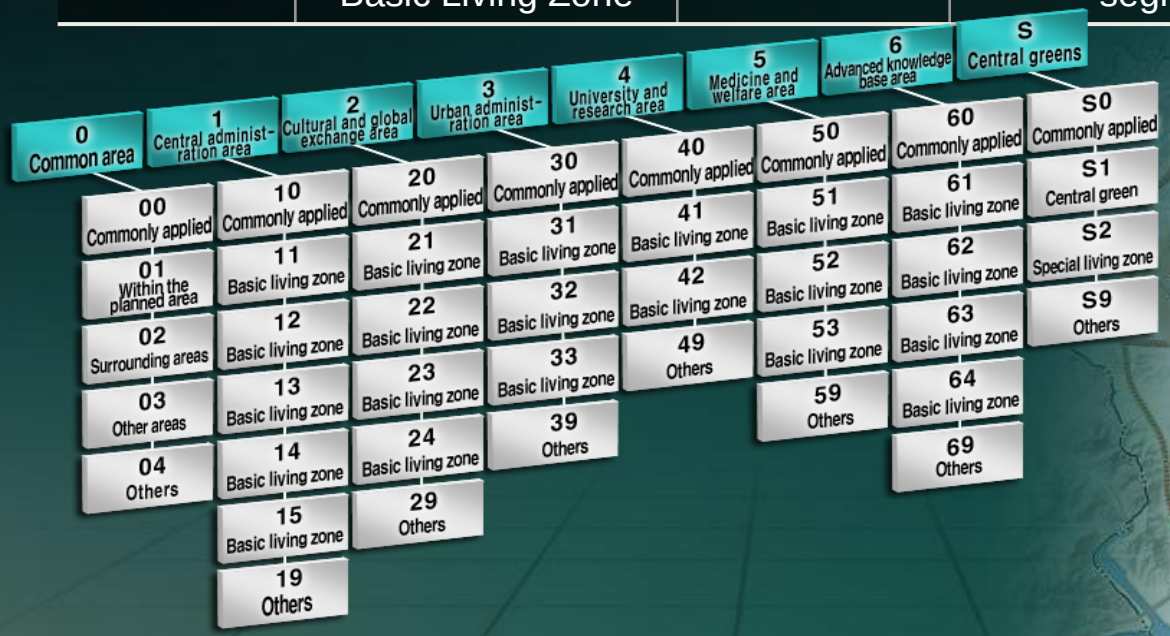
13-111-2-C-C80-31 : 1-3Living Zone, 2Section 3Zone, 1Bloc Site Formation, Soil Pipe Construction

3. Work Breakdown Structure (WBS)

Section Breakdown System (SBS) Code

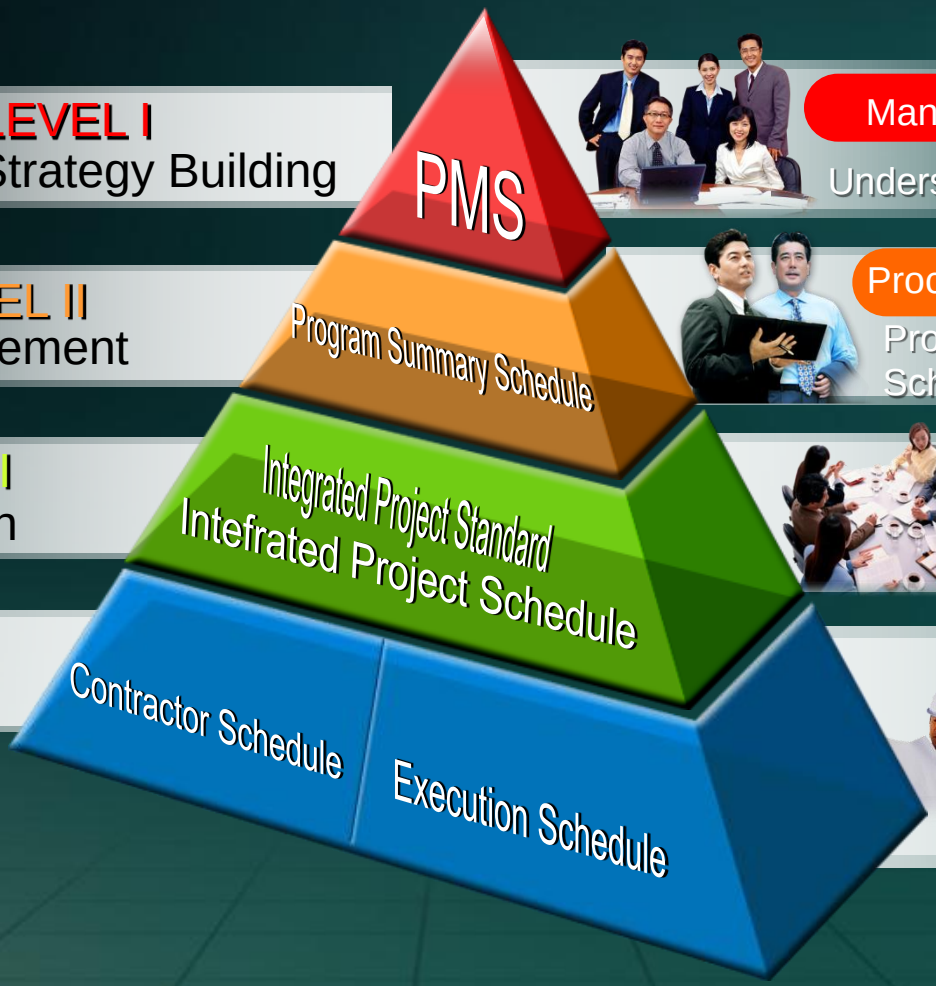
- Divides the Construction project urban living zone into 6 local living zones and 1 central green zone.
- Living zones in each area to be segmented into class structure of each basic living zone.

Division	Contents	Digit number	Description
Level 1	Classified as Local Living Zone	1	0 (Common Use), 1~6 (Local Living Zone), S (Central Green Zone)
Level 2	Classified as Basic Living Zone	1	Classifying each living zone into segmented basic living zones



4. Process Management

Process Management Operation System



LEVEL I
Strategy Building

Manager

Understanding the business overview

LEVEL II
Management

Process management personnels

Process Impact Analysis,
Schedule management

LEVEL III
Operation

Operator

Management based on the process schedule

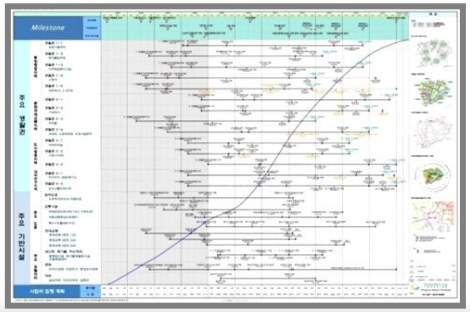
LEVEL IV
Execution

Personnel responsible for practical affairs

Construction based on the management standards

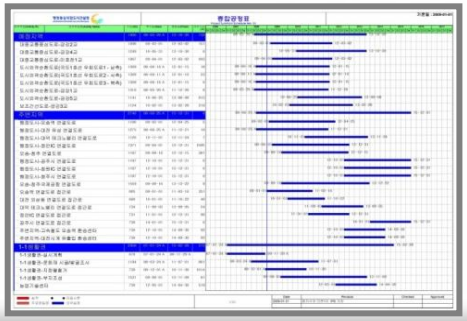
4. Process Management

Program Management Schedule (PMS)



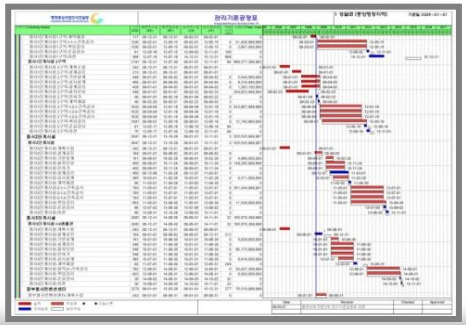
- Presents major business plans and schedule of the overall project
- Classifies the management subjects Into milestone, major living zones, and infrastructure

Program Summary Schedule (PSS)



- Manages the construction schedule of major unit facilities in the Integrated Project Schedule
- Produces bar charts on the construction schedule of overall unit facilities

Integrated Project Schedule (IPS)



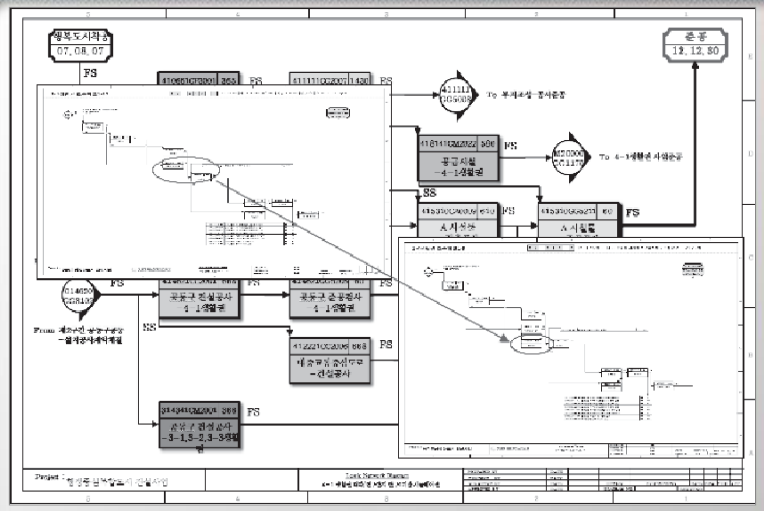
- Segments the unit facilities of the Sejong City construction project into manageable unit activities based on the Project Management Schedule
- Manages with CPM to coordinate with related processes

4. Process Management

Complementation and Revision in the Process Planning

- Complying with the project schedule goal through an active management of the changes in process schedule
- Complementing process planning & supporting speedy decision making

Advanced- Management of Processing Intervention

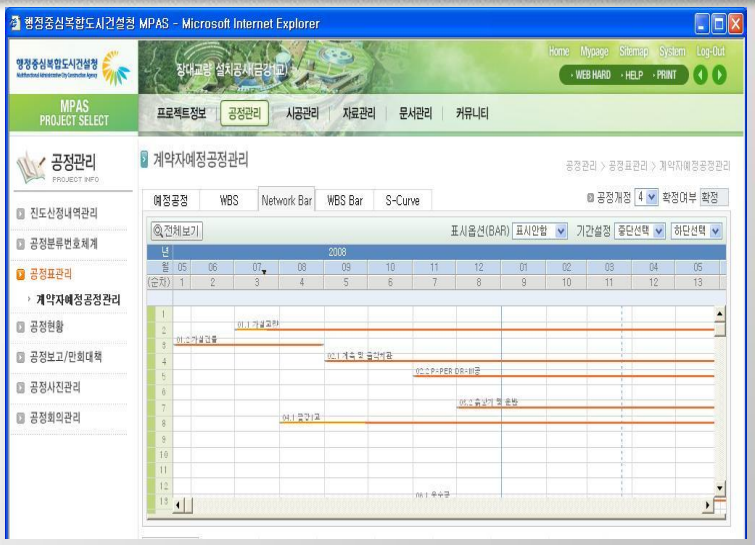


- Establishing an advanced management system for process intervention based on the logic network diagram and an advanced simulation of the process management program

Optimizing Process Management
through a rational processing planning and analysis

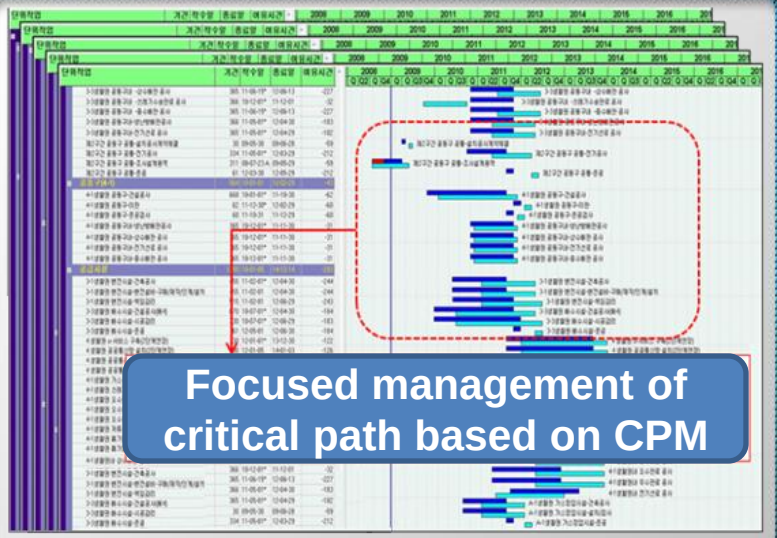
4. Process Management

Progress control through MPAS



- Participants directly fill achieved materials in the MPAS
- Analysis of business achievement in MPAS

CPM-based schedule control



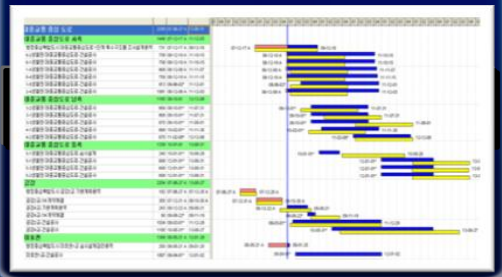
- Use of time management Program
- Systemic schedule management through CPM process analysis

Unification of Time Management Information through networking the system

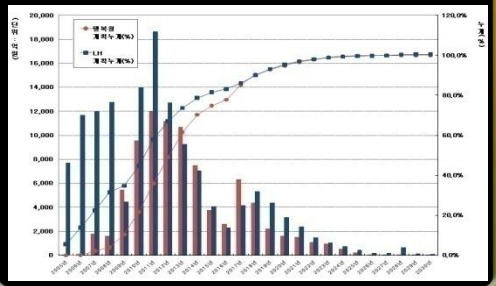
5. Project Cost Management

Cost Management Operation

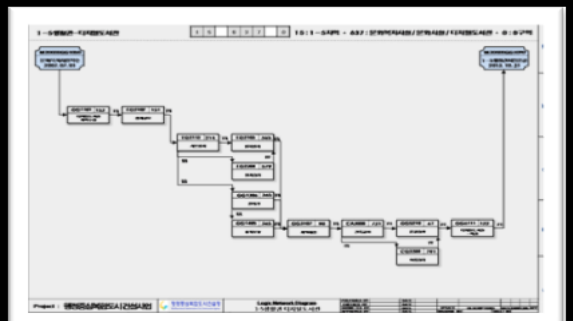
Scheduling

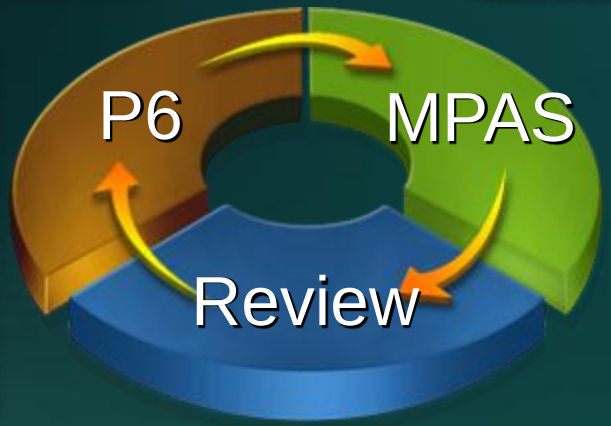


Project Cost Planning

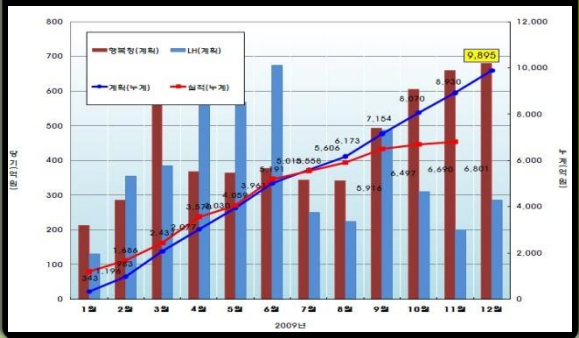


Logic Network Diagram





Project Cost Analysis



Integrated Management of Schedule and Project Cost

6. MPAS (Multifunctional Administrative City Program Administration System)

A real-time integrated management system which oversees all information including the construction process and execution of all participating firms in the Sejong City development project

6. MPAS (Multifunctional Administrative City Program Administration System)

Cyber Monitoring Room

- Project Status (Processing and Schedule)
- Development Plan, Virtual Reality, 3D Simulation, etc.

Comprehensive Project Management

- Overall Cost Calculation (Basic and Current price)
- Analysis of the schedule, progress status, and project cost of every living zone

MPAS

- Detailed project management module for the Agency's directly ordered projects
- Management of information resulting from the execution of the project

Directly Ordered Project Management

- Contractor-specific inputting of the statues & process plans
- Process progress, schedule, project cost execution, Supply of resources, etc.

Input of Contractors' Data

※ **MPAS : Multi-functional administrative city Program Administration System**

6. MPAS (Multifunctional Administrative City Program Administration System)

Data input

- Provision of an ID to every staff in the Construction Agency, and individual project participant & contactor
- Provision of periodic user training programs

On Line
(System)

- Direct inputting of relevant information in MPAS by the contractor
- Periodic reporting of the schedule and process status of the relevant project

Off Line
(Staff Analysis)

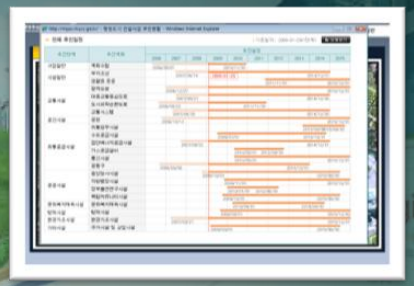
- Performance analysis based on the construction progress, schedule, and the execution history of project cost
- Operation of conference bodies based on the status analysis (Preparing measures for the areas with slow progress)

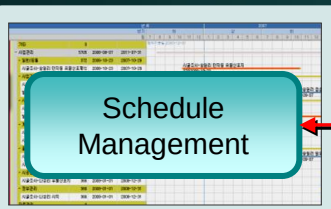
6. MPAS (Multifunctional Administrative City Program Administration System)

Cyber Monitor Room

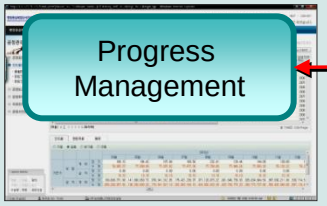
Comprehensive Program Management

Contractor Management System

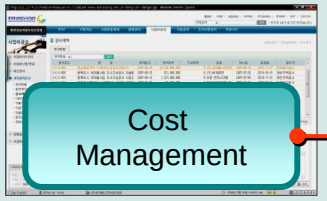




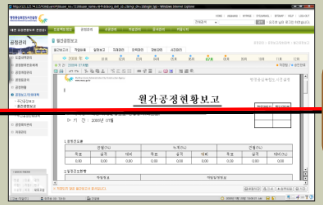
Schedule Management



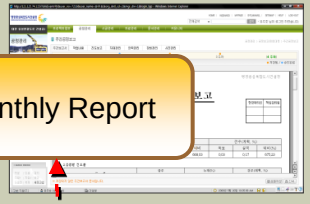
Progress Management



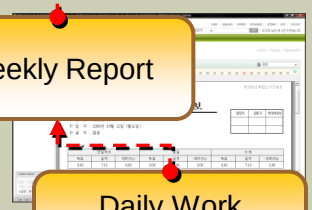
Cost Management



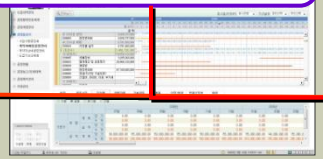
Monthly Report



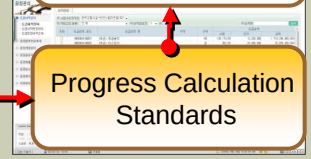
Weekly Report



Contractor's Planned Process



Daily Work Journal

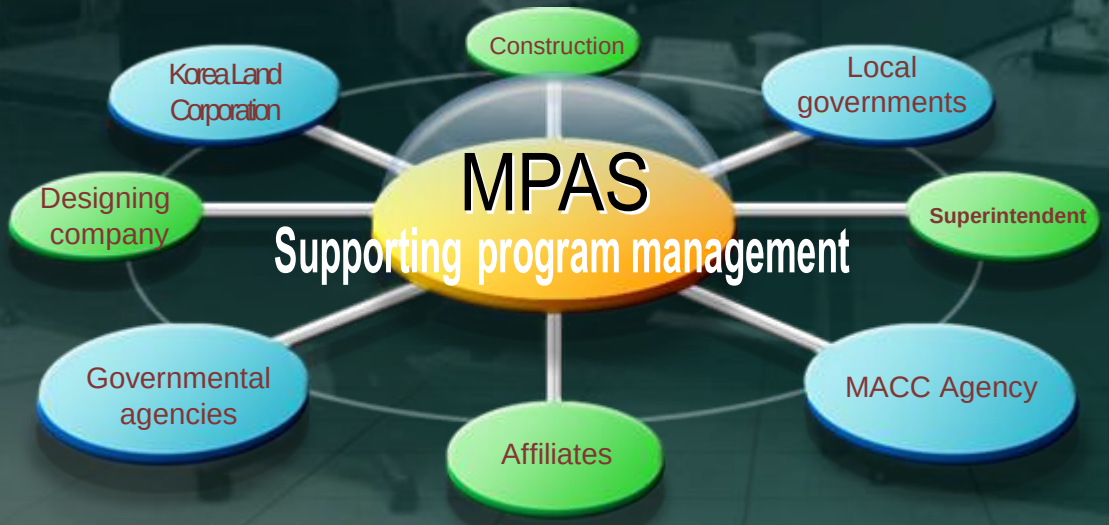


Progress Calculation Standards

7. Comprehensive Program Management Meeting

Role -Control tower of the Sejong City construction project
-Overall supervision and management of the whole project

Overview -Discussion about major current issues every month led by the Chairman of the Construction Agency attended by the Executive Officials of the Construction Agency, the Ministry of Public Administration and Security, Korea Land and Housing Corporation (LH)



8. Contractors' CPM Time Management

Individual Construction in the Integrated Construction Schedule (IPS)

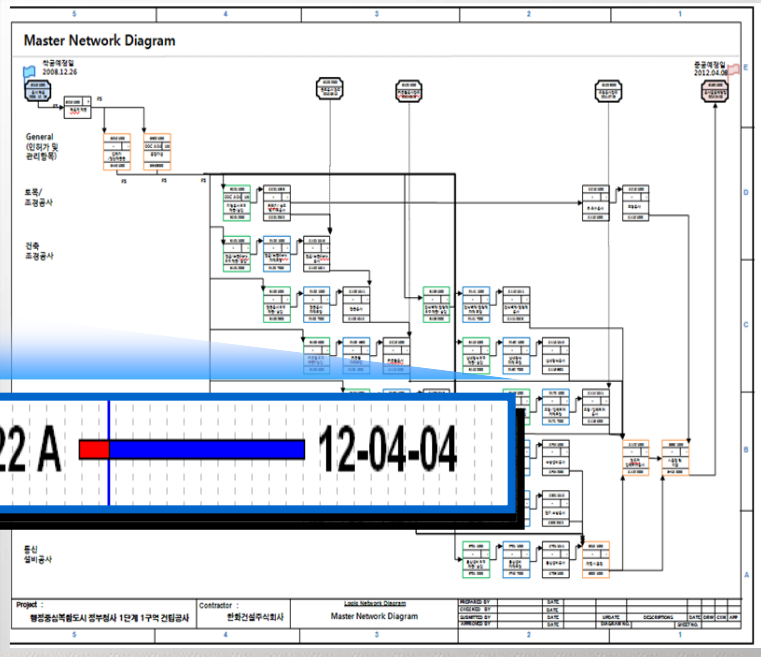
Manage the current status by segmenting into approx 50 activites

IPS (Sejong City)

단위작업명	기간	여유시간	
청사단계시설			
청사단계시설1구역			
청사1단계시설1구역-계획수립	243		06-08-03 A — 07-04-02 A
청사1단계시설1구역-용지보상	730	954	07-09-21 A — 09-09-19
청사1단계시설1구역-인허가	322		07-09-21 A — 08-08-07 A
청사1단계시설1구역-기본설계	101		07-09-21 A — 07-12-30 A
청사1단계시설1구역-설계감리	274		07-09-28 A — 08-06-27 A
청사1단계시설1구역-실시설계	179		08-01-01 A — 08-06-27 A
청사1단계시설1구역-계약체결	112		08-09-01 A — 08-12-21 A
청사1단계시설1구역-건축공사	1200	26	08-12-22 A — 12-04-04
청사1단계시설1구역-책임감리	1199	88	08-12-22 A — 12-04-03
청사1단계시설1구역-준공검사	61	0	12-05-01* — 12-06-30
청사1단계시설1구역-이전	122	0	12-09-01* — 12-12-31
청사1단계시설 2구역-설계감리	439		08-01-21 A — 09-04-03 A
청사1단계시설 2구역-실시설계	270		08-07-08 A — 09-04-03 A
청사1단계시설 2구역-인허가	104		09-01-01 A — 09-04-14 A
청사1단계시설 2구역-계약체결	92	0	09-07-01* — 09-09-30

청사1단계시설1구역-건축공사 1200 26 08-12-22 A — 12-04-04

Logic Network Diagram (Contractor)



Advanced detection of risk factors and speedy preparation of recovery measures

8. Contractors' CPM Time Management

Basic information

Planning

Basic Materials

Stateme…

Spec…

Drawi…

Contract

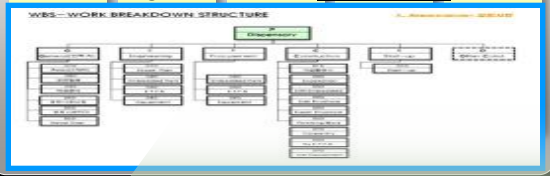
General Contract Conditions

Special Contract Conditions

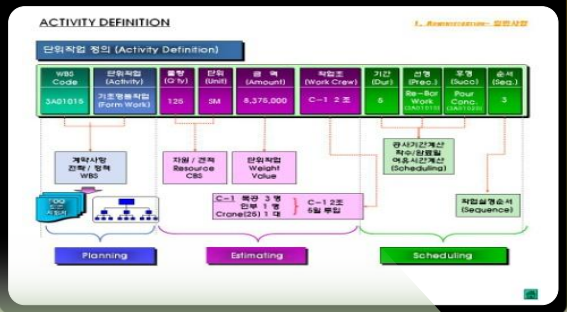
WBS/CBS/OBS

WBS

General Engineer Procure Construct Start-Up



Activity Data



Analysis and Report

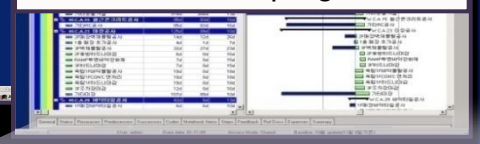
Master Schedule

Milestone Schedule

Summary Schedule

Detailed Schedule

Monthly management of completed and ongoing construction progress

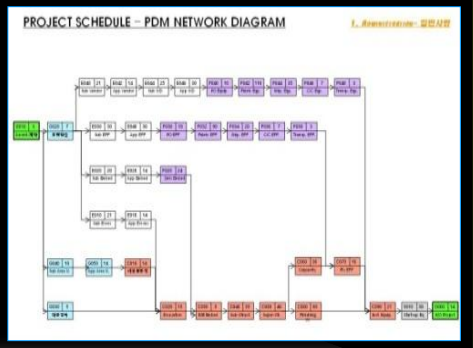


Tool (methods and instruments)

Process Management Techniques

Primavera, Artemis, Open-Plan …

Logic Network



Calculating the optimal construction schedule and cost by supporting the decision makings of contractors at the site

9. Implementation of the CO_2 Reduction Monitoring system

Automated calculation Of the reduced amount of CO_2

Collection and analysis of CO_2 reduction data

CO_2 Management Subject Standardization

Deriving results in the reduced amount of CO2 emission

- Measuring performance status against the CO2 emission reduction goal
- Analyzing the total CO2 reduction amount
- Identifying of the construction status of green facilities
- Writing a report on the CO2 reduction amount

Goal: A city with Zero CO_2 emission

Building the best Green City in the world

9. Implementation of the CO2 Reduction Monitoring system

MPAS

Cost Management
Progress Control
Schedule Control
Contract Control
Data Management
Proper Measures
Help Desk

PM Database

Comprehensive Management Report

CO_2 Monitoring System

- Selecting green facilities and clean subjects
- Setting a CO_2 reduction goal
- Identifying the CO_2 reduction status by area and facility
- Collecting data on the CO_2 reduction amount

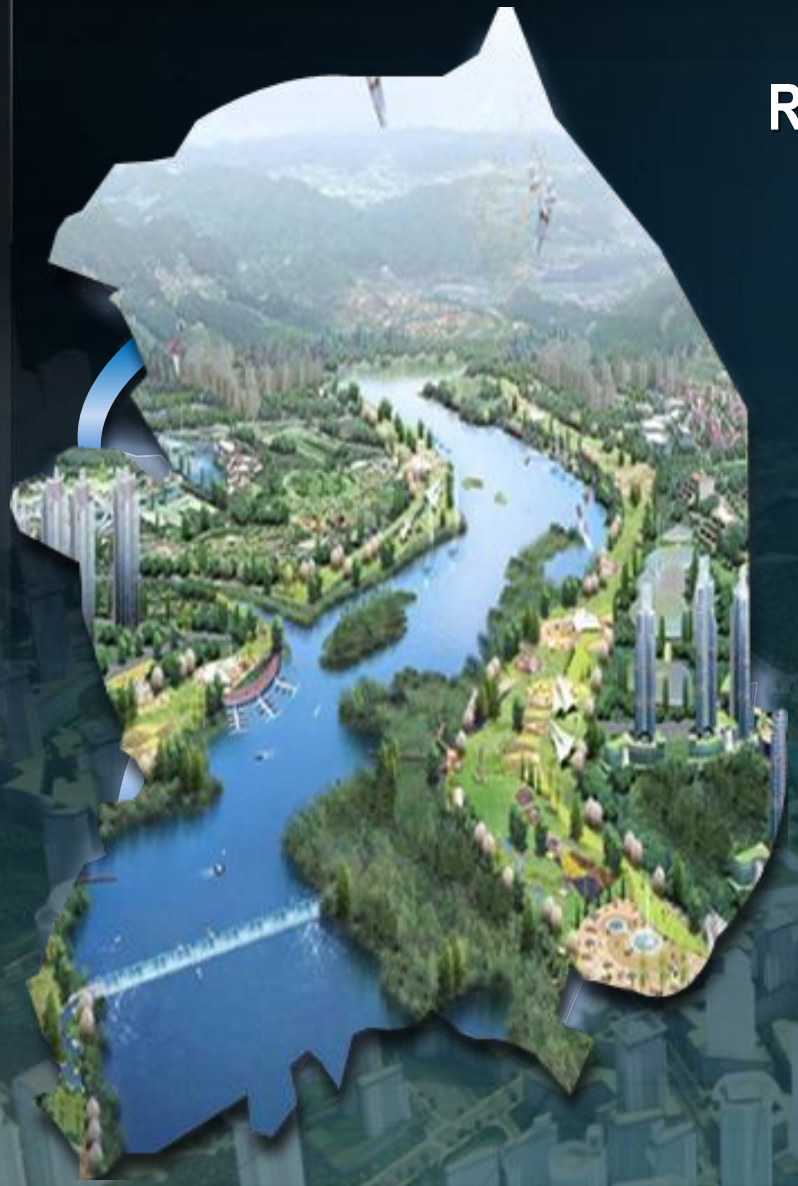
Clean Item	Green facilities	Reduced amount of CO_2
Solar energy Streetlights Earth heat streetlights Rainwater use system Artificial lake Wastes disposal system LEDlights	Waterside park Governmental building Galaxy park Convention center Bike lane Main road express bus system	1,200(TCO_2) 4,600(TCO_2) . . . .

Green Business Classification System

Green Business Procedure

IV. Expected effect

1. Expected effect



Reduction in construction duration by 7%

Budget reduction by 5%

- Speedy decision making
- Minimization of risks
- Smooth communication
- Transparent construction

Thank you!

Multifunctional Administrative City
Construction Agency