Contribution of Cellular systems to ICTs and climate change in KOREA

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KCC, KOREA

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1. Base stations

- SKT operated a wind power-base station and solar power-base station to reduce emission of CO2.
  - The solar power base station is being used well.
  - The wind power project failed,

  ※ SKT operated a wind power-base station in 2006, but it is not currently being operated due to a lack of constant wind.

  ※ SKT : major cellular company in Korea.

- **How to supply diverse green energies are being searched.**

1. Base stations (con't)

<Energy-saving methodologies>

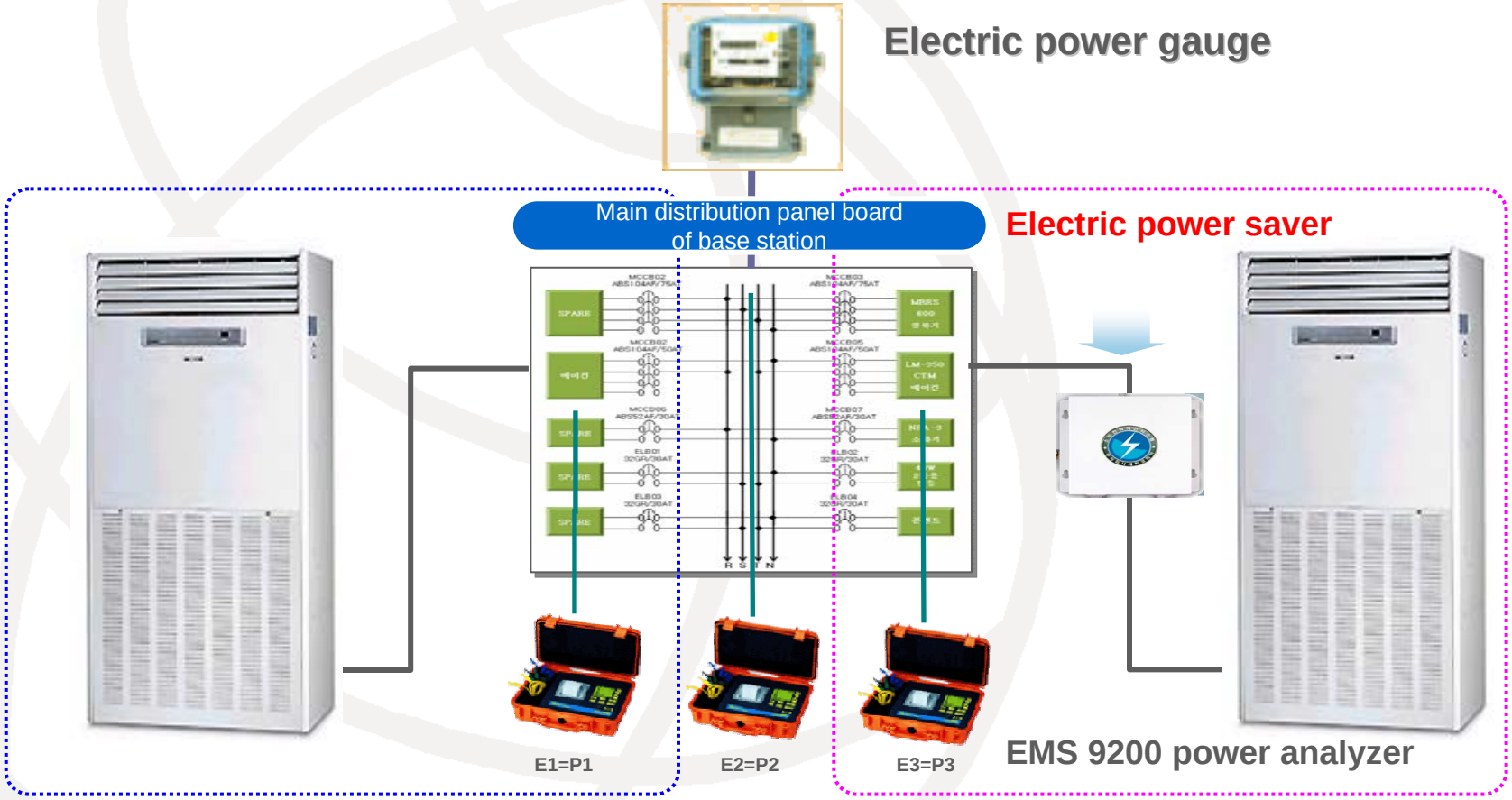
- **Installation of Energy-saving facilities**
  - **Through installation of electric power savers,**
    - **power factors and harmonic waves have improved.**
    - **Generation of harmful electromagnetic waves have been deterred,**
    - **finally operation of stable devices has been promoted.**
  - **This system is saving more than 10%.**
- **Natural cold air(in winter season)**
  - **Reduction in use of air conditioners by inducing cold air from outside to inside in winter.**
  - **This system is saving more than 15%.**

1. Base stations (con't)

- **Other methodologies**
  - Solar powered light
  - High efficiency light equipment
  - High efficiency inverter (pump/power supply system)
  - Automatic light/power control system

1. Base stations (con't)

<Power saver system>



1. Base stations (con't)

<Natural cold air circulation system>

Indoor winter electricity-saving device in base station

Power has been saved by inducing cold air from outdoor to indoor in winter.
Operating hours of air conditioners have reduced.

<SKT repeater using solar power>

Division	Area (km2)	Height above sea level (m)	No. of location points	No. of operating facilities	Headquarter's contents					Responsibility
					Capital region	Busan	Daegu	western part	middle part	
Mt. A	438	1,915	254	15		14		1		Busan, W.P.
Mt. B	355	1,708	231	0						M.P.
Mt. C	182	1,288	118	10					10	M.P.
Mt. D	153	1,950	100							W.P.
Mt. E	299	1,563	195	1					1	M.P.
Mt. F	283	1,057	184	1					1	M.P.,Daegu
Mt. G	66	1,430	43	2		2				Busan,Daegu
Mt. H	61	845	40	2					2	M.P.
Mt. I	76	763	49	3				3		W.P.
Mt. J	219	1,614	143	7				7		W.P.,Busan
Mt. K	106	721	69	6			6			Daegu
Mt. L	79	836	51	4	4					Cap. region
Mt. M	285	1,094	186	2					2	M.P.
Mt. N	322	1,439	210	7			4		3	Daegu
Mt. O	42	809	27	3				3		W.P.
합계	3,123		2,002	66	4	16	10	17	19	

2. Mobile Phone

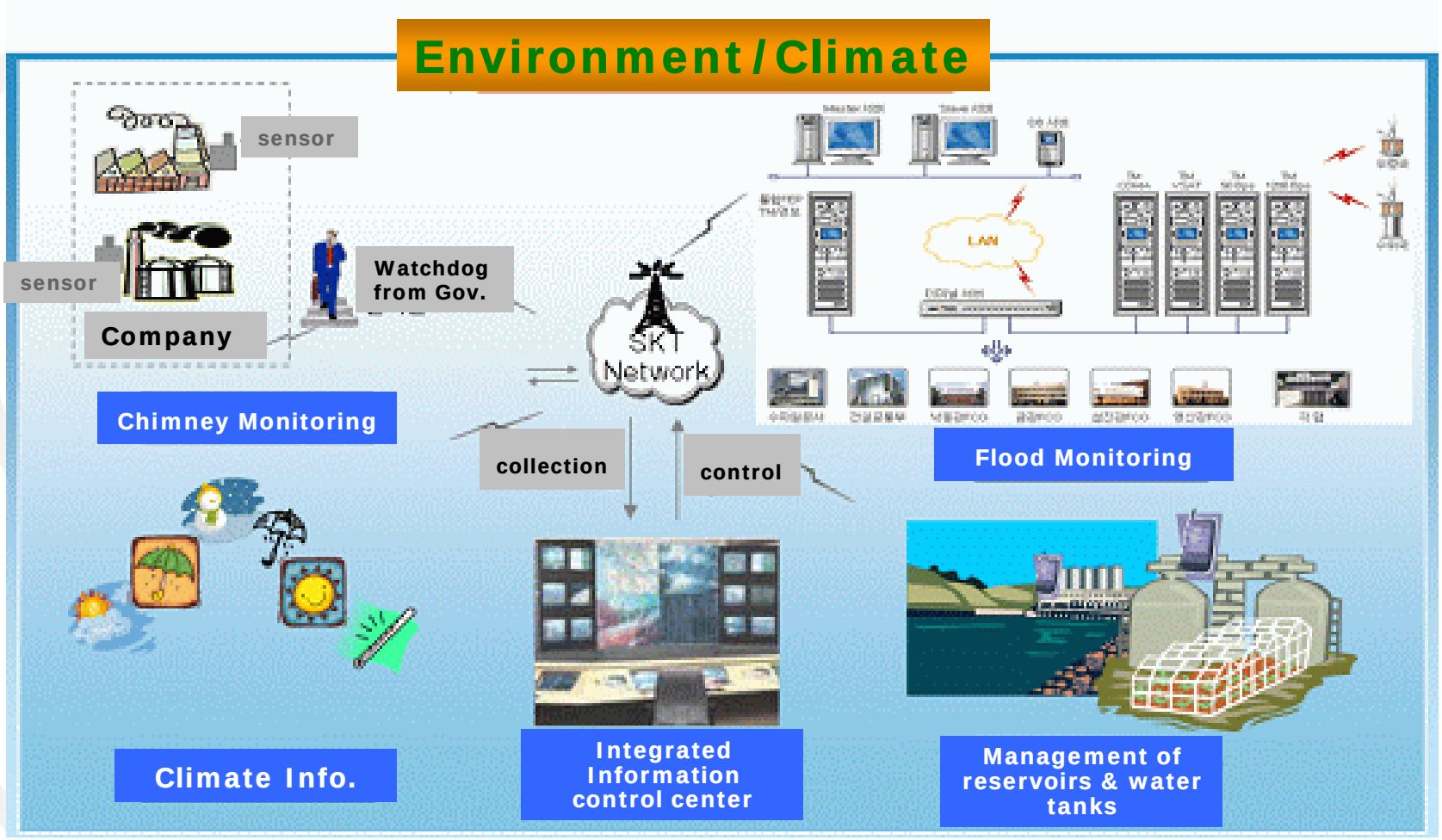
- **Promotion of campaigns to collect old mobile phones to reduce environmental pollution by wasted ones**
  - If they are incinerated like regular garbages, they can create serious pollution
    - Wasted mobile phones contain many harmful substances and
  - They have to be recycled or require separate incinerator.
- **Old mobile phone are being reused for rental or tests.**

3. Services

- **U-City is serving information related to climate by using USN and cellular system**
  - By using a number of sensors in U-city,
    environmental and climate information is measured including temperature, humidity, rainfall, ozone level, water flow amount and flow velocity
  - Sent to control centers by using radio communication networks
    - SKT is carrying out a model program from 2007.
    - The model will apply to U-city or U-eco-city (Green city) operated later.

※ USN : Ubiquitous Sensor Network, U-City : Ubiquitous-City

3. Services (cont.)



3. Services (cont.)

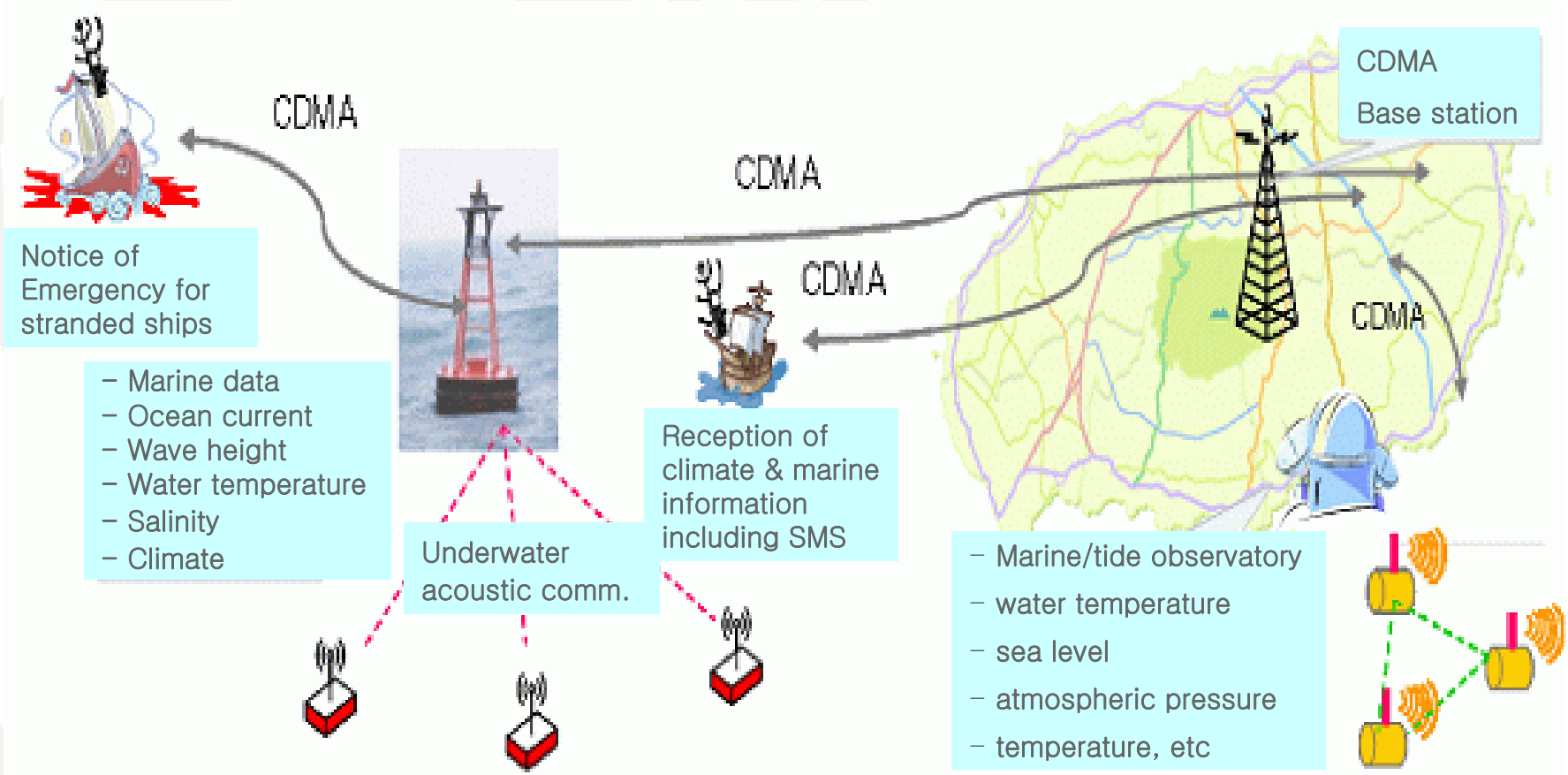
<Marine observation service using USN>
(being planned)

- By locating marine observation sensors in the seabed,
  - gathered data is sent in real time through CDMA network (800MHz).
- By using CDMA network,
  - marine information related to sensors is collected, and processed in real time,

    (such as water direction/velocity/temperature and wave height)
  - to be utilized for marine weather forecasts.
- The collected information is provided to corresponding institutions and persons with credibility.

3. Services (cont.)

< network configuration >



4. Conclusion

- Need to develop the eco-friendly and energy saving system.
- Need to develop various application service for ICT&CC.
- How to use the energy saving system and application service of cellular system for ICT&CC.