



TOSHIBA

Disaster Management Systems



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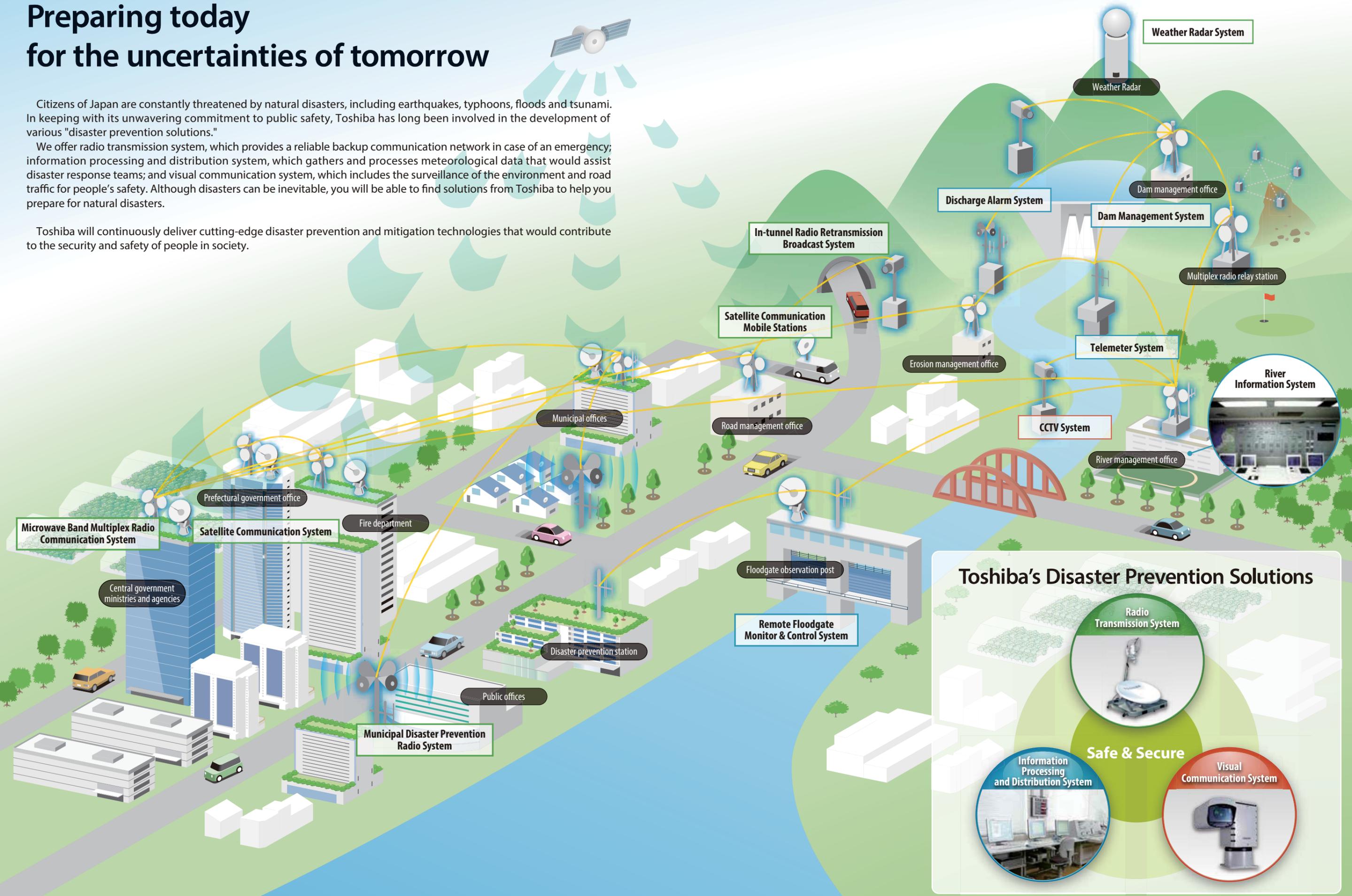
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Preparing today for the uncertainties of tomorrow

Citizens of Japan are constantly threatened by natural disasters, including earthquakes, typhoons, floods and tsunami. In keeping with its unwavering commitment to public safety, Toshiba has long been involved in the development of various "disaster prevention solutions."

We offer radio transmission system, which provides a reliable backup communication network in case of an emergency; information processing and distribution system, which gathers and processes meteorological data that would assist disaster response teams; and visual communication system, which includes the surveillance of the environment and road traffic for people's safety. Although disasters can be inevitable, you will be able to find solutions from Toshiba to help you prepare for natural disasters.

Toshiba will continuously deliver cutting-edge disaster prevention and mitigation technologies that would contribute to the security and safety of people in society.



Toshiba's Disaster Prevention Solutions

Safe & Secure

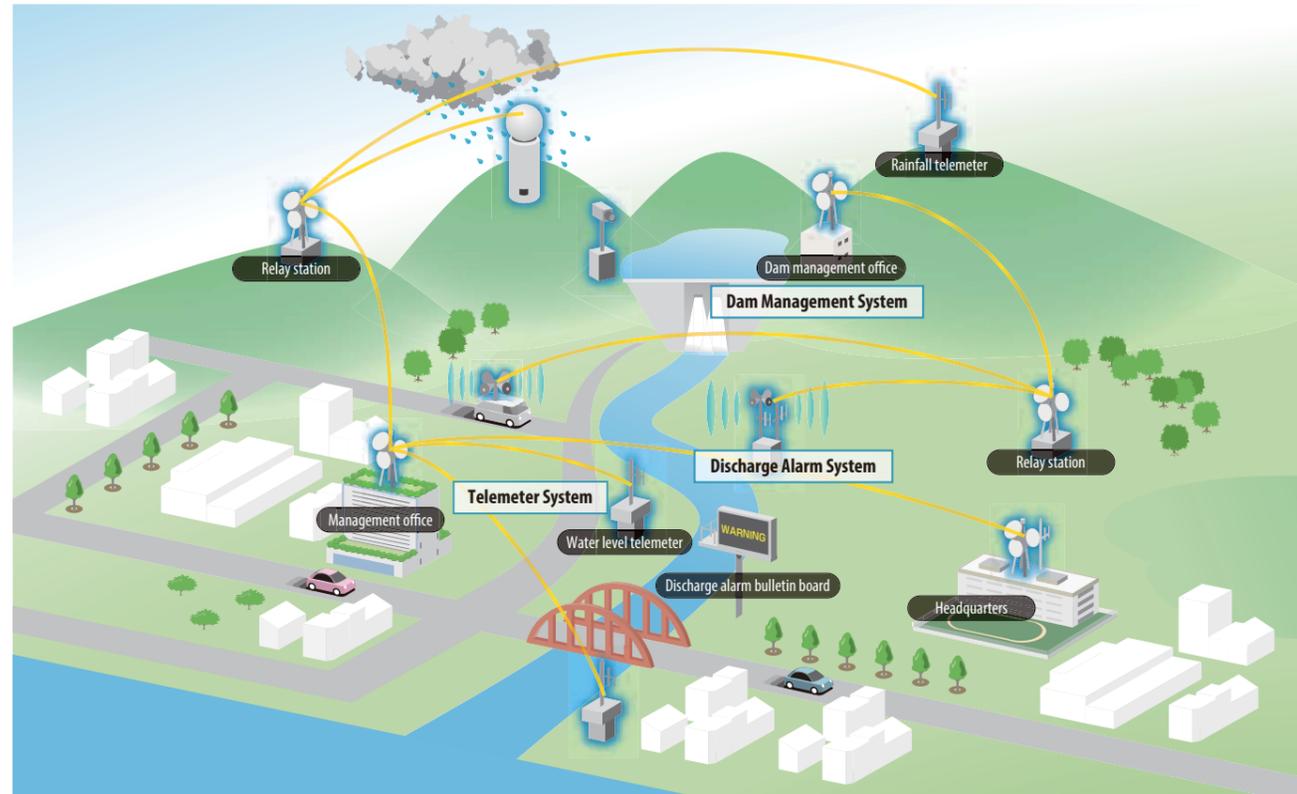
- Radio Transmission System
- Information Processing and Distribution System
- Visual Communication System

Toshiba Disaster Prevention Solutions

Information Processing and Distribution System

Gathers and processes various kinds of data to help people safely live in harmony with nature.

Dam Management System / Telemeter System / Discharge Alarm System



Dam Management System

- 1 Includes computers that process dam data (dam water levels and water discharge volumes) and telemeter data (river levels, etc.). This allows operators to check data on a screen, create reports and operate gates and valves of the dam.
- 2 Assists with decision-making for water discharge and gate/valve operations.



Dam management system

Telemeter System

- 1 Collects various weather data for the management of dams, rivers and roads. Data such as the amount of rainfall and water level are transmitted to a monitoring station via wired or wireless connections.
- 2 Allows installation of relay stations between a monitoring station and telemeter slave stations depending on geographical conditions.



Telemeter slave station

Discharge Alarm System

- 1 Warns residents, living downstream from a dam, of a river level rising caused by a water discharge from the dam. The alarm system consists of sirens, rotating lights, loudspeakers, and etc.
- 2 Allows both wired and wireless links to connect dam management offices and alarm units for information transmission.



Discharge alarm station

Tsunami / Storm Surge Damage Prevention System

Remote Floodgate Monitor & Control Systems

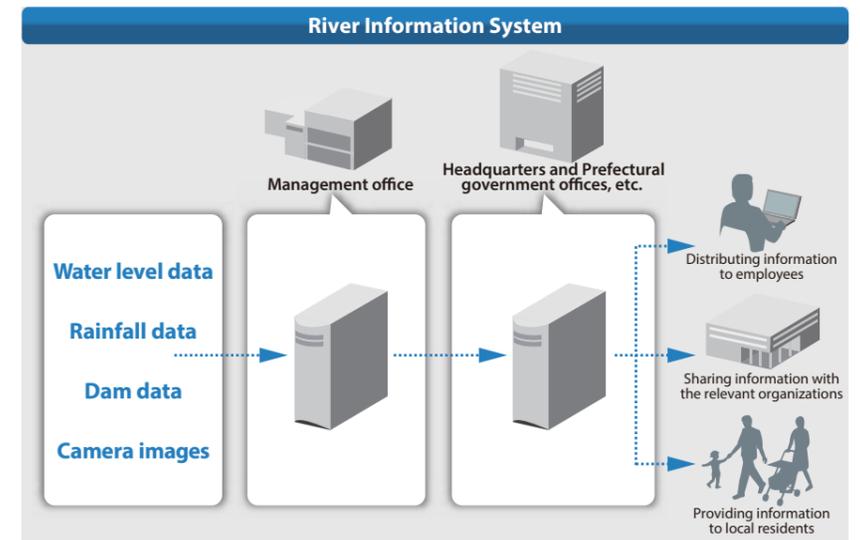
- 1 Remotely monitors and controls floodgates, sluice gates and other coast facilities from a disaster prevention station.
- 2 Offers sophisticated remote system that collects and monitors the data from many coastal facilities.
- 3 Provides an added safety mechanism that consists of wired, wireless and satellite connections to ensure that gates can be closed in the event of an emergency.



Information Processing and Distribution System

River Information System

- 1 Gathers and processes observation data including the amount of rainfall, river level and dam water level real time to facilitate flood control. The processed data are distributed to both the government and the general public.
- 2 Offers optimal river information systems to both the central government and local governments that suit their respective needs.

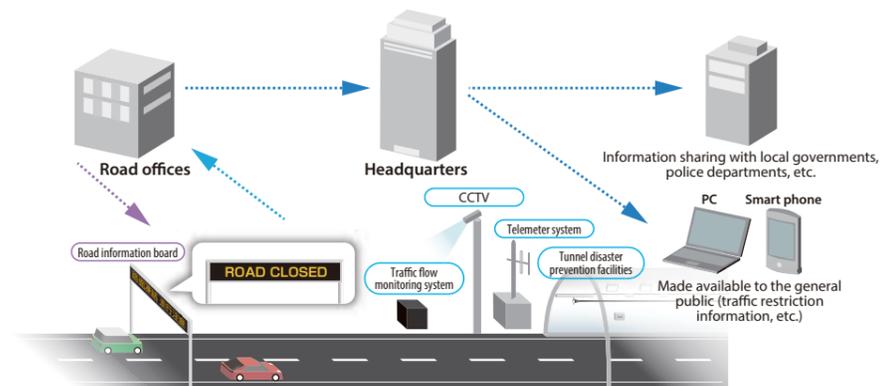


Erosion Control Information System

- 1 Collects data from rain gauges, wired sensors and CCTV cameras installed on hills and cliffs, and warns both the government and the residents of a possible landslide.

Road Information System

- 1 Gathers and processes weather data, traffic density data, CCTV images and etc., to help improve both traffic safety and road utilization, and distributes information to drivers continuously via road information boards, and vehicle information and communication systems (VICS).



Radio Transmission System

Provides radio links in the event of a disaster for the people's security.

Prefectural Disaster Prevention Radio System

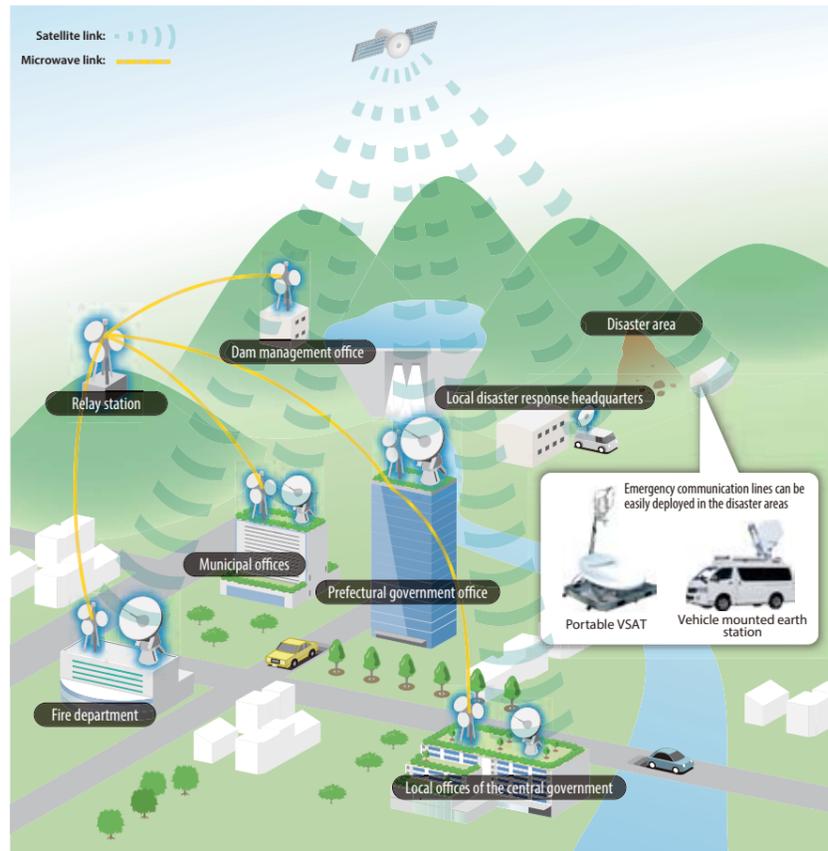
- 1 Provides radio links among prefectural government offices, municipal offices, disaster response agencies and other organizations and establishes a wide-area network in the prefecture.
- 2 Combines satellite, multiplex radio and other connections to maintain reliable communication system in the event of a disaster.

Satellite Communication System

- 1 Deploys a reliable communication system that withstands terrestrial damages.
- 2 Provides communication links not only at disaster response centers but also in disaster areas by vehicle mounted earth station and transportable very small aperture terminals (VSAT).
- 3 Provides radio links nationwide. Also exchanges information not only discretely but also simultaneously.
- 4 Has the capacity to send telephone signals, faxes, large video files and other data.

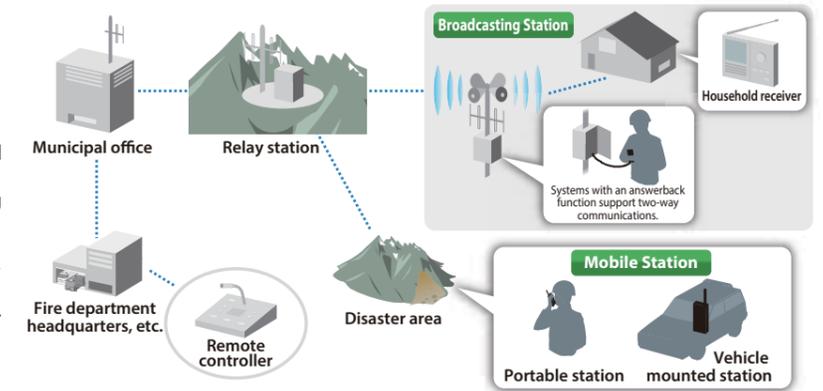
Microwave Band Multiplex Radio Communication System

- 1 Links between disaster response centers by microwave (2 to 10 GHz) radio circuits and sends telephone signals, faxes, large video files and other data.
- 2 Provides reliable communication lines in the event of a disaster without relying on terrestrial circuits.



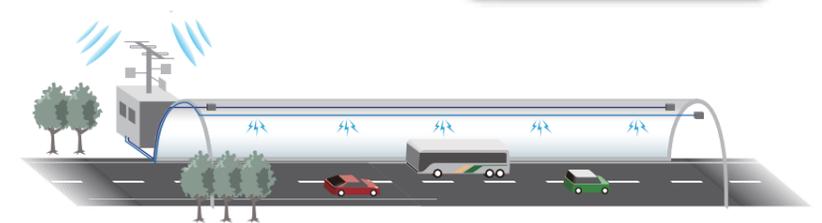
Municipal Disaster Prevention Radio System

- 1 Assists local governments to deliver disaster and administrative information to local residents.
- 2 Configurable to suit specific purposes, including full-area and limited-area broadcasting.
- 3 Allows broadcasting stations not only to send voice messages but also to transmit information by connecting PCs with broadcasting slave stations.
- 4 Allows employees to communicate with each other via mobile stations.



In-tunnel Radio Retransmission Broadcast System

- 1 Allows drivers to listen to AM and FM radio in tunnels where radio waves might normally be blocked.
- 2 Interrupts a radio program to provide evacuation guidance via radio in the event of a traffic accident.



Weather Radar System

- 1 Measures the intensity of rainfall over a wide area by sending microwave pulses and detecting signals reflected back from rain droplets.
- 2 Utilizes solid-state transmitters. High-precision observation is made possible with multiparameter methods.
- 3 Expected to enable the observation of rapidly developing cumulonimbus that are likely to cause tornadoes and torrential rain locally.

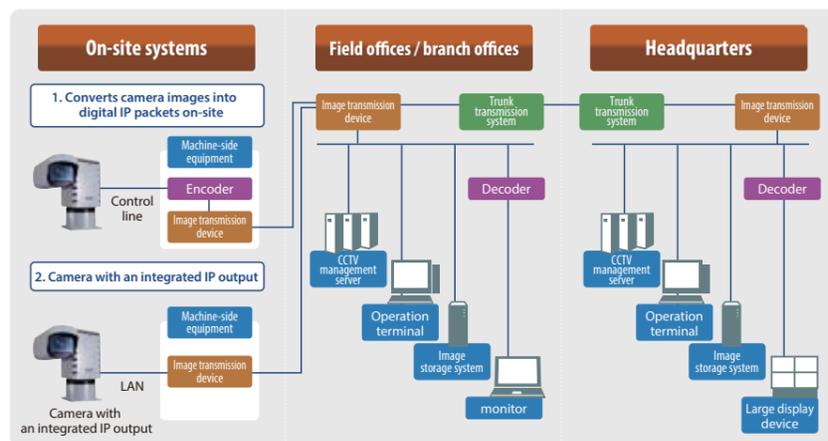


Visual Communication System

Assists both the surveillance team and residents by customizing a suitable video system.

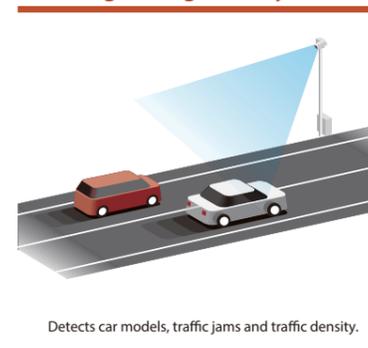
Closed-circuit television (CCTV) System

- 1 Video systems intended to be used by personnel at disaster response centers and other similar locations.
- 2 Can be tailored to fit various needs, such as traffic flow/accident surveillance on roads, flood surveillance along rivers and tsunami/storm surge surveillance on seacoasts.



CCTV Application Examples

Image Recognition System



Moving Object Detection System

