Information and communications technology (ICT) can be a powerful tool for biodiversity conservation. The Fujitsu Group is striving to employ ICT in biodiversity conservation initiatives in various fields.

Putting ICT to Work in Biodiversity Conservation

ICT excels at tasks like efficiently collecting, analyzing, and interpreting voluminous data, as well as using such data to optimize work processes. These characteristics can also be of great use in biodiversity conservation. For instance, ICT can be utilized on the preservation frontlines not only to enable efficient work but also to yield greater results. The Fujitsu Group is working on new ICT applications for biodiversity conservation.

ICT in Action 1	ICT in Action 2	ICT in Action 3
Goal: Evaluate the Effectiveness of Natural Feeding Grounds for Japanese Cranes	Goal: Harvest Top-Quality Grapes	Goal: Make Time-Consuming Professional Vegetation Surveys Fun and Easy

ICT in Action 1: Goal: Evaluate the Effectiveness of Natural Feeding Grounds for Japanese Cranes

Japanese Crane Conservation Project in Hokkaido's Tsurui Village


Natural Feeding Grounds for Japanese Cranes

A special national treasure, the Japanese crane, or tancho, is designated as a vulnerable species. The Wild Bird Society of Japan set up natural feeding grounds for this species at its Tsurui-Ito Tancho Sanctuary in Hokkaido's Tsurui Village in hopes of preventing its extinction due to the spread of infectious diseases at crowded feeding stations during the winter. However, accurate studies on the use and effectiveness of the natural feeding locations were needed.

Researchers had been using the time-consuming method of setting up video cameras in the field for subsequent retrieval, so investigations were limited to roughly biweekly studies for each location. To assist, Fujitsu installed a video surveillance system that leveraged a multi-sensing network. This enabled the Japanese cranes' activities to be recorded every 10 minutes and the data to be transferred to a nature center. The leap in survey accuracy also newly revealed that feeding sites are actually used by multiple flocks of cranes, whereas it had previously been thought that each flock claimed exclusive territory for feeding.

In addition to ongoing video monitoring of the sanctuary's natural feeding grounds, the project will serve as a platform for enlightening the public on Japanese crane conservation and community network-building. Specifically, tie-ups with organizations like local elementary and junior high schools will be used to promote environmental education, while tourism will also be leveraged to disperse information.

VOICE

Chief Ranger, Wild Bird Society of Japan Preservation Projects Tsurui-Ito Tancho Sanctuary
Shigeo Arita

Japanese cranes depend on human feeding during the winter. The Wild Bird Society of Japan is working with volunteers from around the country to create natural winter feeding grounds so that the cranes can forage for food on their own in the wild.

Thanks to installation of the multi-sensing network, we can continuously monitor the feeding grounds. This helps us gauge the effectiveness of our conservation efforts as well as make improvements. We will use the system to expand our initiatives to preserve Japanese cranes' wintering grounds.

- Fujitsu Supports ICT-Enabled Japanese Crane Conservation in the Kushiro Wetland Area [Press Release]
- Activities Report: Actions to Protect Japanese Cranes Near the Kushiro Marshlands(in Japanese)

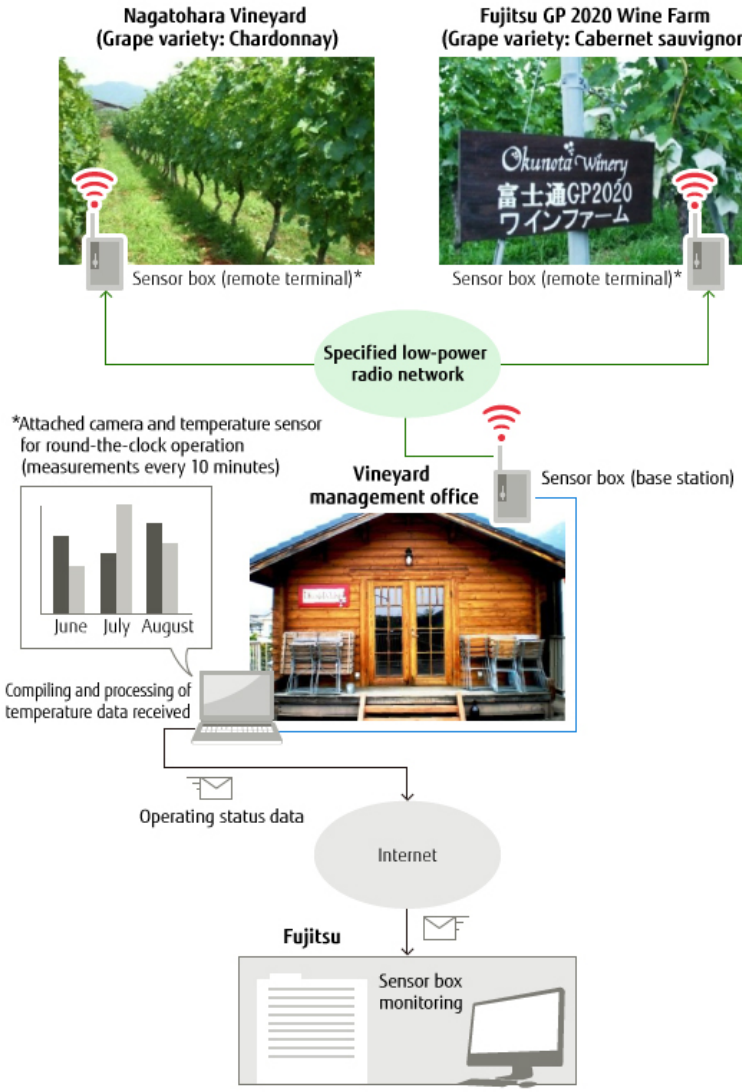
ICT in Action 2: Goal: Harvest Top-Quality Grapes

Vineyard Temperature-Sensing Project in Yamanashi Prefecture's Kofu City

Wine vineyards in Kofu City, Yamanashi Prefecture bloom in mid-June and approach harvest in September. Vineyard temperatures play a major role in determining optimum harvest and pest-control timelines. For example, the best time to pick grapes for winemaking can be determined from the cumulative difference between the daily high and low temperatures since the flowering date. In addition, grape pigment levels can be determined from the cumulative duration of time each day when the temperature drops below 22 degrees Celsius from the hottest summer day to the harvest date. However, due to the difficulty in acquiring detailed and accurate temperature data, farmers had been relying on long years of experience and instinct to make these decisions.

Fujitsu launched a temperature-sensing field trial in June 2011, spurred by a consultation about temperature measurement from a vineyard where its employees had been participating in an agriculture experience program. Utilizing a multi-sensing network, we outfitted the vineyard with sensor boxes from which the administrative office received temperature data every 10 minutes around the clock. We also utilized a temperature data collection and analysis program to realize accurate assessment of vineyard temperature trends.

Using these sensing methods substantially reduced temperature measurement man-hours. Accurate temperature data also enabled effective pest control, which led to better wine quality and less pesticide use. In fiscal 2012, we will take the ongoing agricultural sensing system field study to the next level by adding rain and humidity gauges as part of efforts to contribute to ICT use in agriculture.



VOICE

Representative Director, Okunota Winery
Masakazu Nakamura

The installation of a multi-sensing network has now made it possible to check changes in temperature at the vineyard every 10 minutes without ever leaving our office. This benefit, in turn, has enabled us to take appropriate steps to fight off harmful microbes that could stunt grape growth. As a result, although the average wine vintage in Yamanashi Prefecture in 2011 was not very good, Okunota Winery was recently able to produce its finest vintage. In fiscal 2012, we are collecting data on measured rainfall and humidity as well. In this way, we are utilizing ICT in our quest to produce high-quality wine.

- Fujitsu Launches Sensor-based Agricultural Support Efforts at Wine Farm in Japan's Yamanashi Prefecture(in Japanese) [Press Release]

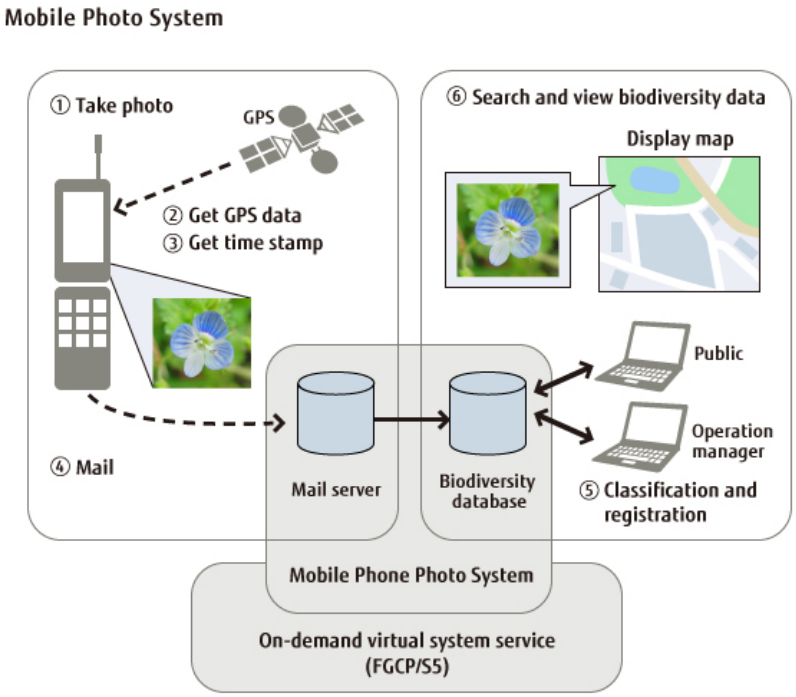
ICT in Action 3: Goal: Make Time-Consuming Professional Vegetation Surveys Fun and Easy

Tamagawa River Vegetation Survey Using Mobile Phone Photo System

It is important to have an accurate understanding of the wildlife and vegetation inhabiting a region when considering measures to conserve its biodiversity. This information has conventionally been obtained through studies led by experts who go out in the field and construct mesh maps of the area, but this process is extremely laborious and time-consuming. In 2011, Fujitsu set out to make vegetation studies easy and fun, utilizing photographs taken with GPS-equipped mobile phones to conduct a study of vegetation along the Tamagawa River in Kawasaki City in cooperation with the municipal government and NPOs.

For the survey, we divided around 28km of the Tamagawa River Basin in Kawasaki City into roughly 7km segments and participants into four groups to photograph the vegetation in each of the segments using mobile phones. One of the great things about this survey was that many people were able to participate and image and positional information was easily collected thanks to the use of everyday equipment-mobile phones. Things learned from the survey include that wild radishes only exist downstream of the Shintamagawa Bridge on Daisan Keihin Road, whereas wild chrysanthemums are only found upstream of the Tokyu Railway Toyoko Line bridge.

By continuing to leverage ICT to support vegetation surveys, the Fujitsu Group aims to make scholarly contributions to both vegetation taxonomy and conservation ecology, while sparking interest in biodiversity through activities in which a wide range of people can enjoy taking part.



VOICE

Assistant Manager for Coproduction Promotion, Tama River Policy Promotion Section, Greenery Development Department, Construction and Greenery Development Bureau, City of Kawasaki
Ryuji Inada

We are thankful for understanding and cooperation on the Tamagawa River vegetation survey, and are carrying out our operations in collaboration with the community while utilizing Fujitsu's ICT. Using familiar mobile phones to conduct the latest survey made it fun for all involved. Compiling survey results was also a breeze and it was clear that the system is easy for anyone to use. We intend to make good use of the survey results, while continuing to advocate partnerships with civic, corporate, and government organizations.

- Utilizing ICT in Tamagawa River Vegetation Surveys(in Japanese) [Press Release]