Community development with a core facility for ensuring peace of mind.

The challenge of providing long-term support for recovery, through the efforts of industry.

On March 11, 2011, the Tohoku region (the northeast part of Honshu, the main island of Japan) was struck by the Great East Japan Earthquake. Immediately afterwards, I found myself searching for missing family members in Rikuzentakata City, Iwate Prefecture—wandering in the pitch-black night, without any electric power supply. With no accurate information available, and with no lights at all to see by, it was a really disheartening situation.

Eight years on, the new town being built at Rikuzentakata has yet to take shape. In this report, we look at the challenge that has been taken up at Ohira Village in Miyagi Prefecture, where business enterprises, the local government and local people have combined their efforts with the aim of “building a factory-centered community where people can enjoy real peace of mind.”

The F-grid Concept

Text and photographs by photojournalist Kei Sato.

Located around 40 minutes’ drive from one of the biggest cities in northeast Japan Sendai, Ohira Village is the only local administrative district in Miyagi Prefecture that is designated as a Village (as opposed to a City or Town). Before visiting Ohira, I had a preconception that it would just be a collection of steel-blue factory buildings. But what I actually saw was a park where a group of senior citizens and families were relaxing, and a roadside rest area where locally-grown vegetables were on sale. If I hadn’t been looking for it, I probably wouldn’t have noticed that there was also an industrial park directly opposite me. The industrial park, which is centered around the Toyota Motor East Japan (TMEJ) factory, has been developed using the revolutionary new F-grid (“Factory grid”) concept. The environmentally-friendly electric power and heat energy that are generated by Toyota’s large-scale generator unit are allocated flexibly to the factories of seven companies that are located within the industrial park. For example, the facility belonging to restaurant chain Skylark needs to keep ingredients and food products chilled continuously, 24 hours a day, and so is able to make effective use of the power generated by Toyota’s generator unit during periods when other factories are using much power—night time for example. VEGi-Dream Kurihara Corporation uses the waste heat generated by the nearby factories to cultivate high-quality paprika peppers. In this way, F-grid provides a framework for efficient production which involves collaboration between the manufacturing and agricultural sectors, and which creates jobs for the local community.

What is truly revolutionary about F-grid is the electricity transmission arrangement that has been established through collaboration with Tohoku Electric Power Co., Inc. In the event of a natural disaster or other emergency, the electric power generated at the Toyota factory can be transmitted to the Village Office, which serves as the Disaster Management Center for Ohira Village. “There were some significant psychological barriers to overcome. Linking up the systems so that we could transmit electric power generated by another company’s generator unit was an almost unimaginably difficult task. However, we strongly identified with Toyota’s vision of ‘Growing together with the local community,’” explains Mr. Kobari, the head of the transmission department at Tohoku Electric Power’s Miyagi branch.
People can work with peace of mind with their families being safe.

"It's not enough just to think about our own company; we need to think in terms of the needs of people outside the Toyota Group and outside the automotive industry—the needs of people throughout Japan." The Great East Japan Earthquake of 2011 led Toyota to develop the F-grid concept based on the vision outlined above. While rushing to get the factory operating again, employees had no peace of mind because of the uncertainty affecting their families. When the earthquake occurred, the electric power supply was cut off, so there was no way of transmitting information; people living inland had no idea as to how badly affected the coastal areas had been. With no lighting in the village, people were enveloped in an atmosphere of fear and worry. Electric power means more than just the power needed to run a factory; it is also used for displaying car engines, etc. It takes time for an area that has been affected by a natural disaster to start to appear, and daily life is gradually starting to return to happy normality.

F-grid is a system that aims to realize the efficient supply of energy within an industrial park by combining energy (both electric power and heat) from electricity generation equipment that utilizes the municipal gas supply with effective control and optimization of electricity purchased from the electric power company. In an emergency, electric power can be transmitted from F-grid to the local Disaster Management Center.

The "YUI Gallery" forms part of the TMJU factory at F-grid, and is normally used for displaying car engines, etc. In an emergency, the Second Floor area of the Gallery will be made available as an emergency evacuation center for the general public, with enough room to accommodate around 200 people. In the event of a power outage, this facility would still have backup power from the F-grid generator and from PHV (plug-in hybrid vehicle), it is also equipped with TV sets, mobile phone chargers, and satellite phones.

F-grid is founded on an awareness of the need to focus not just on corporate profitability, but also on working together with local government authorities and local people on the challenge of community development. It doesn't matter how good your infrastructure is; if you don't listen to people who live there, then you can't really call it a "community." Toyota sincerely hopes that, for people living in areas affected by natural disasters where recovery is taking a long time, a warm light of hope is starting to appear, and daily life is gradually starting to return to happy normality.

The approach to underpin future community development.

Industry and daily life are two sides of the same coin.