

Mining the Waste Reserves

An industry promotion project being conducted in the Tohoku region of northern Japan is working to build a recycling-oriented society based on age-old skills and used materials. **Tamura Mariko** investigates.

With its abundance of mines, the Tohoku region has traditionally played an important role as a major producer of non-ferrous metals in Japan. Part of this history has been the development of advanced refining technologies. International price wars and changes in demand forced the mines to close, but the region has launched a recycling initiative, using its established refining techniques. Based on the key concepts of “competition and partnership” and “environmental considerations,” Tohoku has begun a major effort to create environmental businesses.

An Industry Promotion Project for a Recycling-oriented Society (hereafter IPPROS) is one of the industrial cluster projects being run by the Tohoku Bureau of Economy, Trade and Industry (METI Tohoku). “This project makes a distinction between the businesses engaged in waste recycling, or the ‘veins,’ and those engaged in development and in manufacturing waste into recycled products, the ‘arteries.’ If the Tohoku region evolves into an industrial zone geared for the recycling-oriented society, it will be possible to target the global market,” explains Katada Koji, head of the Recycle Oriented Industry Promotion Division of METI Tohoku.

The IPPROS Committee, chaired by Saeki Akio, president of Tohoku Electronic Industrial Co., serves as the core promotional body for the project. The Committee operates out of the Tohoku New Business Conference (TNB) in Aoba-ku ward, Sendai. It has three subcommittees: one for waste disposal and recycling technologies, another for eco-friendly product and production process technologies, and the third for new projects and businesses.

Of these three subcommittees, the Subcommittee for New Projects and Businesses is operated by the Tohoku Economic Federation. Centered on small and medium enterprises in the region, the multi-company alliance is endeavoring to create new projects and businesses.

“Universities conduct research that meets the needs of businesses to accelerate the progress of the project,” says Katada, underlining that this subcommittee is unique in that the academic sector undertakes the research function in light of the needs of the business sector.

To produce a successful example, the subcommittee asked several leading com-

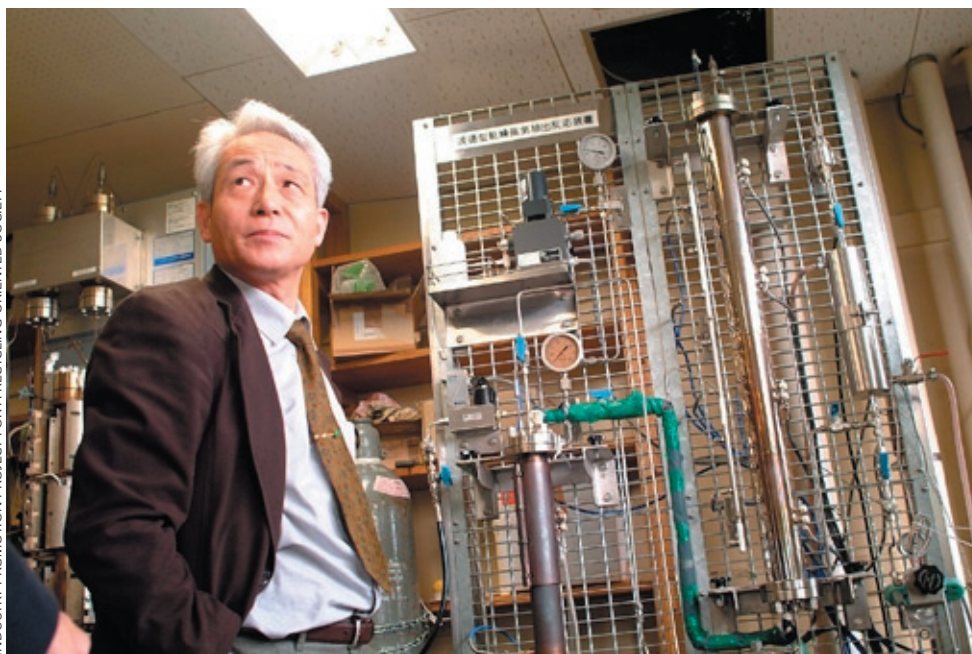
panies in the region to submit their needs. In reply, the Kamaishi Works of Nippon Steel Corporation made a suggestion. It was put into practice after it turned out to be possible to apply to it the technical concepts developed by Professor Yamazaki Nakamichi of Tohoku University.

The proposal envisioned setting up a business engaged in recycling oil-bearing scale (ferric oxide) generated from steel works. It was aimed at applying low-cost deoiling technologies to the oil-bearing

ating the new products and technologies that originated from the commercialization support and sales channel expansion support project and that is now owned by enterprises. It also undertakes business matchmaking by introducing them to venture capitalists and specialist trading firms to support commercialization.”

Recycling Scrap Wood

Among these study groups, one that is drawing attention is the Scrap Wood



Professor Yamazaki Nakamichi with his test equipment for the deoiling of oil-bearing scale

scale of the Kamaishi Works. The application uses surplus vapor in the plant. A small-scale verification plant was already installed, so a demonstration test was commenced.

The three subcommittees are thus making progress independently. This is largely thanks to the study groups that operate under their aegis. At the moment, there are 14 study groups with a total of 607 participants.

The IPPROS Committee makes suggestions, offers advice, and follows up the research and development schemes run by government ministries and their affiliated organizations in response to technical development projects formulated by the study groups.

Moreover, according to METI Tohoku, “It studies the system and criteria for evalu-

Recycling Study Group, which is based within the Yamagata Public Corporation for the Development of Industry. “It is aiming to develop new recycling businesses centered on the recycling of waste lumber. What we are trying to do is to provide greater business opportunities for struggling constructors and forestry businesses,” explains Ando Norio, president of Hywood Co. Ando’s company is a recycling equipment dealer based in the city of Yamagata. In collaboration with Rtech (Sagae-shi city, president Takahashi Takemasa) and Yamagata Research Institute of Technology, it took part in a joint initiative that successfully developed a device that examines if a hazardous preservative and pesticide, namely Chromated Copper Arsenate (CCA), is contained in waste building ma-

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Ando Norio, president of Hywood Co.

materials. Called Wood Scan, this portable product is already on the market. It is now being offered to commercial scrap wood recyclers, on a trial basis.

“CCA contains a substance that is hazardous to humans and it is necessary to separate it out when recycling scrap wood. But it is difficult to tell if wood contains CCA by visual means alone,” Ando explains.

Before Wood Scan, the only method to identify lumber with CCA was chemical analysis, a time consuming process. But it was discovered that when a near infrared beam is exposed to lumber with CCA, the reflected light has a different wavelength from that of the reflected light from virgin lumber.

“Just turn the sensor towards lumber, and you can instantly check it without being influenced by wood type or wetness.” Ando discovered that exposure of near infrared light can detect CCA with high precision. The product is designed to be portable so that it can be brought onto the site where a building is being dismantled.

Ando emphasizes that the equipment will become increasingly critical in the future: “We see 4,700 cubic meters of waste wood emitted per year from buildings, yet there is no progress in recycling. Most of this waste is either burnt or buried at landfill sites. That’s because of the existence of CCA in the wood. No lumber with CCA is produced in Japan at the moment, but until about ten years ago it was used in large quantities for the foundations of residential houses. Buildings constructed during the era of rapid economic growth are nearing the end of their useful life, so it is essential to separate wood containing CCA.”

Hywood is also working with a major optical device manufacturer to develop a CCA tester in image processing for separa-

tion lines in wood chip plants.

“To boost secondary use as a safe industrial product, we will need to have a separation process both at the place of dismantlement and at the plant,” Ando says.

Other promising activities include the Iwaki Green Project Study Group chaired by Professor Okawa Nobuyuki of Higashi Nippon International University. With the participation of industrial, academic, and governmental players in the Iwaki district in Fukushima-ken prefecture, this study group consists of a committee for research and one for commercialization. It has so far constructed a plant for testing a technology to separate optical isomers, something that has been difficult to do in qualitative terms. A trial for practical application has been conducted.

Cultivating Sales Channels

As the technical development projects gather momentum, the importance of assistance in developing sales channels grows. This is evident from a comment made by Ando: “It is a challenge to cultivate sales channels.”

Recognizing this, the committee launched an advisory board. It also runs a campaign entitled “BUY Venture Tohoku (SBIP²: Small Business Innovative Products Purchase)” to boost purchases of products produced by business ventures in the Tohoku region.

“For fiscal 2005, we are planning to carry out purchase and procurement activities on a full scale and develop them into a movement designed to increase purchases with the support of the public,” says METI Tohoku.

“To ensure a successful experience, we must have our own technology; one that is viable worldwide,” confirms Ando.



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Compact and portable, “Wood Scan” identifies where hazardous CCA-containing lumber is used before a residential building is demolished.

He aspires to further expand the wood tester project.

METI Tohoku acknowledges that its new mission is to turn the considerable number of technological ideas that have emerged in the last few years into real businesses. So the challenge for the future will be to help commercialize the new technologies that are being established.

It is hoped that those ventures that fit the recycling-oriented society will contribute to the creation of new businesses in the Tohoku region. ■

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