



Special Feature

Japanese Knives (*Wabōchō*) Gain Global “Edge”

Amazing Cutting Experience Achieved by Traditional Japanese Techniques

Japanese Knives Wabōchō Gain Global “Edge”

More and more chefs around the world are becoming enthusiasts for Japanese Knives (*Wabōchō*), traditional Japanese kitchen knives. Bjorn Heiberg is one such devotee who fell in love with Japan’s high-quality knives, which led him to run specialty cutlery shops in Osaka and Tokyo. We asked him to explain to us the true essence of *wabōchō*—the epitome of Japanese knife craftsman remarkable techniques.

Japanese Knives (*Wabōchō*) Demonstrate Overwhelming Sharpness and Durability

Located near the famous *Tsūtenkaku* Tower in *Shinsekai*, a *shitamachi* (old-style, closely-knit neighborhood) in the southern part of Osaka City, Tower Knives Osaka is a one-of-a-kind specialty store selling Japanese cutlery and whetstones. Store attendants are capable of communicating in Japanese, English, and French, to accommodate the needs of the many customers who are visitors from outside Japan.



Bjorn Heiberg

Born in 1969 in Canada, and raised in Denmark. Came to Japan at age 23, first working as an English instructor and later at a trading company. When he was 34, he was headhunted by a Japanese cutlery sales company based in Sakai City, Osaka, and worked there for nine years. In 2012, he resigned and opened Tower Knives Osaka, near *Tsūtenkaku* Tower.

Store owner Bjorn Heiberg, a born Canadian but raised Danish, is an expert in Japanese knives, who collects the choicest products from areas across Japan known for producing excellent cutlery. The shop is designed in such a way that visitors can easily observe the beautiful forms of his gleaming products, which demonstrate the passion he has in distributing them.

In fluent Japanese, Heiberg explains the background of the store. “Ever since I was small, I collected a variety of knives, sharpened them, and used them for fishing and when playing outdoors. At some point, I had a chance to read a translated version of the manga *Kozure Ōkami* (“Lone Wolf and Cub”) and was astounded by the sharpness of the sword used by the main character. I became fascinated by Japan, which produced such remarkable cutlery. I was 23 when I first came to Japan. I had planned to stay only for six months, but it somehow extended to 25

years.”

Wabōchō are knives with distinctive shapes unique to Japan, crafted using techniques derived from traditional Japanese sword-making. Representative styles include *deba-bōchō* (broad-bladed fish fillet knife), *yanagiba-bōchō* (long “willow-shaped” *sashimi* knife), and *usuba-bōchō* (thin-bladed vegetable knife). These are all single-bevel knives (sharpened at an angle on one side only). Heiberg, however, says he focuses more on the superb quality of Japan-made knives rather than on their unique shapes, because what interests culinary experts outside Japan is the sharpness achieved by the unrivaled techniques of Japanese bladesmiths.

These days many apply the word *wabōchō* not only to single-bevel knives, but even to double-bevel knives with Japanese traditional handles. “In the hands of skilled bladesmiths, even a double-beveled *gyūtō* (chef’s knife) or a *santoku-bōchō* (general-purpose knife) can have incredibly sharp edges. Such sharpness is achievable only by honing the hardened metal to its utmost limit. A normal steel blade cannot be honed and thinned to a precise edge and will chip and fall apart easily. Japanese knife makers take the steel through a ‘heating, kneading, and pounding’ process to increase its elasticity,

strength and hardness, just like clay. The strengthened blade is then painstakingly honed to achieve the required level of sharpness. We could say that it is the Japanese craftsmen’s persistence in improving their techniques to the utmost level that makes the blade so sharp.”

Durability is another beneficial feature of a *wabōchō*. Heiberg says that if properly taken care of, one can last for decades and become a “knife that lasts a lifetime.”

At a demo space in Tower Knives Osaka, You can compare the surfaces of a carrot sliced by a dull, inexpensive knife and a *wabōchō* priced at around 20,000 yen, sold at Heiberg’s store. To cut the carrot with the dull knife requires force, while the *wabōchō* cuts through the carrot without making a sound as soon as the blade makes contact with it and you pull the blade toward you. The cross-section of the piece cut by the dull knife is uneven, and

the juice was oozing out, making the surface rough-looking. The one cut by the *wabōchō*, on the other hand, was smooth and had almost no trace of moisture.

“Differences in sharpness affect taste,” Heiberg comments. “A sharp knife doesn’t crush the fibers, and locks in the good taste of the raw material. Also, cut surfaces which are smaller result in slower oxidation, and hence achieve extended retention of good taste. When salad ingredients are cut by a *wabōchō*, the cut surfaces don’t soak up the dressing, so the ingredients stay crisp and retain their true taste.”

Interaction Between Customers and Craftsmen Who Pass On Traditional Techniques

A variety of visitors come to Tower Knives Osaka. Japanese or non-Japanese, they are unanimously amazed at the sharpness of the products and spend a long time in the store showing their excitement. Knives with such superior sharpness and durability can cost between 10,000 and 30,000 yen, but Heiberg says that people who understand the value of good quality tools purchase these knives without hesitation.

“A razor-sharp knife can definitely improve the taste of one dish over another, even if they’re made using the same procedure. It can also make cooking easier and more enjoyable. Regardless if one is

a culinary professional or not, knives are tools used daily for everyday meals. Good products come with a big price tag, but for frequent users, they prove cost-effective.”

Inside their new updated Osaka store called *Hamono Kobo*, which opened in December 2016, there is a fully equipped grinding workshop with large water wheels and other machines. There on certain dates, craftsmen from different parts of Japan come to demonstrate knife-making, make direct sales of their products, and instruct customers on how to sharpen knives. Heiberg calls his store a “knife communication hub.”

“Many cutlery production sites are facing price issues, where buyers want cheaper prices, and craftsmen with the talent for making truly good knives are unable to support apprentices at those prices. We opened this store in the hope that craftsmen would focus on customers’ needs and the competitiveness of their products in global markets, rather than worrying about competitors. By interacting with customers who understand the value of their knives, they regain their pride as craftsmen, and through communicating with other craftsmen, they are mutually inspired to make better knives. I’d like to continue supporting craftsmen who are eager to go global.” The journey of Heiberg, the “*wabōchō* crusader,” continues, with an endless horizon ahead of him.

a dull knife vs a sharp one



The piece of carrot on the left was sliced using a dull knife, and the one on the right using a knife priced around 20,000 yen at Heiberg’s store. The right carrot has a smooth and beautiful surface.

Authentic knife-sharpening method recommended by Bjorn Heiberg



1 Prepare the surface of the whetstone

Sprinkle water onto the whetstone and draw lines on its surface with a pencil. Using a concrete block or the equivalent flattening stone, grind the whetstone until the pencil lines disappear and the surface becomes flat.



2 Sharpen the knife with the whetstone

Press the edge of the blade against the whetstone and lift the spine 14 degrees or 3-5mm (1/10-1/5 inch). Keep the blade angled and push it lightly away from you while applying slight pressure to sharpen that side of the blade. Sharpen the other side (if applicable) by applying slight pressure and pulling it gently toward you.



3 Remove burrs on the tip of the blade

Wrap a board with cloth from used jeans etc. and slide the tip of the blade across it to remove the burrs.



4 Check the sharpness

Cut a sheet of newspaper etc. and see if the blade slices without catching.

Siam Kraft Industry Co., Ltd.



Siam Kraft Industry Co., Ltd., is a leading player in the packaging paper industry in Thailand. Representing one of the main core businesses of a major ASEAN business conglomerate founded by royal decree in 1913—the Siam Cement Group—it is committed to saving energy and protecting the environment. To drive its efforts, air production and energy efficiency were optimized by introducing automatic coordinated control of the air compressors at the company’s Wangsala Complex. The energy-savings target at the complex was successfully achieved by improving the compressors’ specific energy consumption.

Energy Efficiency a Key Concern with Rise Energy Prices

The 68 million people of the Kingdom of Thailand have achieved robust economic growth and rapid industrial and commercial development over the past thirty years. Energy-intensive industries, including petrochemicals and construction, together with export-oriented manufacturing industries such as pulp and paper, constitute a large part of Thailand’s GDP, which ranks high among those of Southeast Asian nations.

Siam Cement Group (SCG) has stood out as a role model for operating business domestically and internationally for over a century. Established in 1913 following the decree of His Majesty King Rama VI, the group provides products that contribute significantly to the country’s modernization. With the Crown Property Bureau as its top shareholder, with a 30% stake, SCG has three primary businesses, SCG Cement-Building Materials, SCG Chemicals, and SCG Packaging.

SCG Packaging, with more than 50

subsidiaries, is the first manufacturer of high-quality packaging paper in Thailand and the largest in Southeast Asia. It provides a comprehensive range of products and services to satisfy the diverse needs of various industries. Siam Kraft Industry Co., Ltd. (SKIC) is a subsidiary with environmentally friendly paper recycling as its core business. With production sites in Thailand, the Philippines, and Vietnam, the company’s output is 2.3 million tons of packaging paper per year.

“SCG has a consistent policy of pursuing energy efficiency and environmental protection as it does business, says Panya Sopasriphan, SKIC’s Energy Division Director. “Thailand as a whole views environmental policy as important and has been making efforts in this area since the 1970s, when laws related to environmental protection were enacted. Since that time, policy measures are being strengthened, particularly now regarding energy efficiency and renewable energy. SCG, as a business group representing Thailand, has been working hard

in these areas.”

SKIC, as a part of SCG, has been implementing energy-saving and environmental initiatives for a long time. Mr. Sopasriphan notes that “The price of coal increased sharply in 2008, and electricity and natural gas prices rose continuously afterward. Improving energy efficiency became an important issue when considering production costs.”

Coordinated Control of Compressors Optimizes Air Production

It was under these circumstances that Azbil Corporation approached SKIC’s Wangsala Complex with a proposal based on successful energy-saving projects in Japan. SKIC expressed an interest and asked Azbil to conduct an energy audit. “Azbil has a subsidiary in Thailand and has abundant experience implementing various energy-saving projects. We knew that its technology and ability to offer solutions are outstanding, and we were also looking forward to learning from Azbil as the project proceeded,” comments Sombat Tungtiwanon, Energy Depart-

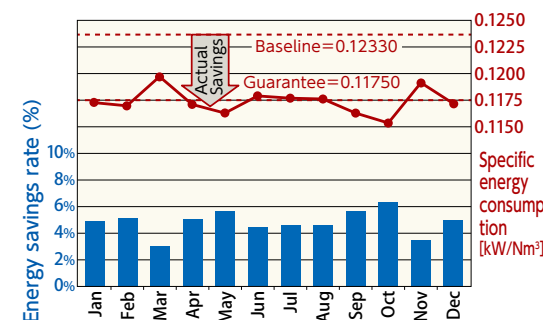


Compressors that supply air to SKIC’s entire Wangsala factory



The operational condition of each compressor is displayed on an ENEOPTcomp screen

2017 Compressor Energy Optimization Report



ment Manager.

Among the alternatives Azbil proposed on the basis of the energy audit, SKIC chose to install ENEOPT™comp to optimize control of the compressors supplying air to its production facilities. “Compressor power consumption did not account for a large proportion of our total energy cost, but we knew that the specific energy consumption was high, because six compressors were individually started or stopped depending on the demand at the production site. Managing them was one of our big challenges,” says Tun Towichakchaikun, Power Plant Diagnostics Center Manager.

Before the new control method was implemented, individual compressors vented any over-pressure in the piping caused by reduction of air consumption at the production site. Azbil’s proposal involved controlling the pressure of the compressor system as a whole to efficiently use the energy in each compressor’s lines without venting it. For the six compressors, which differed in age, manufacturer, efficiency, and energy consumption, an optimized system providing individualized and coordinated control was installed.

Expanding Energy-Solutions Business within SCG

ENEOPTcomp’s optimized compressor control began operation in December, 2016, and generated good results. “In terms of improving the specific energy consumption, we were able to monitor

each compressor’s efficiency, with energy savings of 4.83% for 2017, compared to our initial target of 4.7%. That means we achieved 102% of our goal,” says Mr. Towichakchaikun. “What’s more,” adds Mr. Tungtiwanon, “ENEOPTcomp visualizes our data, enabling us to improve operation, find and fix equipment errors, and make maintenance plans.”

Based on the results of this project, SKIC is now planning to improve the energy efficiency of its compressors at the Ban Pong Complex, its other production site in Thailand. “Compressors at the Ban Pong Complex are installed at multiple locations on a large site, unlike the Wangsala Complex, where the six compressors are in a single location, so we can’t just copy the previous solution. We will consult energy conservation specialists as we proceed,” says Nattawut Suragiattichai, Diagnostic and Optimization Engineer.

SKIC aims at further developing our energy business. Mr. Sopasriphan explains, “Energy efficiency is our top priority, since energy costs make up 15–20% of SCG’s packaging production costs. We at SKIC are thinking of expanding our energy solutions business, either based on an ESCO model,*1 or with other financial arrangements. We will start with SCG companies first, using what we learned from this project, and then approach companies outside SCG.” Mr. Sopasriphan adds, “Our other priority is energy security. Our new businesses include sustainable projects like utilizing waste, solar, and biomass for energy generation in order to distribute risk and avoid reliance on specific energy sources like coal. We hope for a fruitful collaboration with Azbil across a wide range of energy business sectors in the future.”

Siam Kraft Industry Co., Ltd.



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Establishment
1976

Business profile
Manufacture of packaging paper



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glossary

***1 ▶ ESCO (energy service company) model**
In an ESCO (energy service company) model, a specified level of energy savings is guaranteed by the ESCO, which provides comprehensive services to reduce energy consumption in a factory or building.

Preserving the Founder's Principles into the Future by Promoting Technological Research and the Sound Growth of Young People

Azbil Yamatake General Foundation, established to commemorate Azbil Corporation's 110th anniversary, inherits the spirit of Azbil's founder and benefits society by facilitating the sound growth of young people and the advancement of technology. Now in its third year, the foundation's programs provide foster care and student scholarships.

Inheriting the Founder's Spirit and Contributing to Society with a Human Touch

Azbil Yamatake General Foundation was established in February of 2016 to commemorate Azbil Corporation's 110th anniversary, with the purpose of fostering technological advancement and the sound growth of young people, who are the key to the future.

Although the azbil Group had been contributing to society through its businesses, there was a desire to take that effort one step further. With that desire as the starting point, the foundation



Seiji Onoki

Representative Director
Azbil Yamatake General Foundation

was established at the time of the 110th anniversary.

Azbil Yamatake General Foundation was named after the company's previous name, "Yamatake," since it carries on the founder's wish to free people from drudgery. The foundation's aim is to contribute to society based on the "human-centered" concept stated in the azbil Group's corporate philosophy.

Asunaro Friendship for the Sound Growth of Young People

Azbil Yamatake General Foundation promotes (1) scholarships, (2) educational awareness, and (3) research activity, in a program which is called *Asunaro Friendship*.

The program's name expresses the hope that children, every one of whom has future potential, will grow straight up and healthy like a tree called the *asunaro*.

The foundation is now undertaking the following four major activities for children. First, it contributes to an educational support fund established by the city of Fujisawa (the *Fujisawa-shi Kyōiku Ōen Kikin*) and participates in and helps to fund a Fujisawa city scholarship program (the *Fujisawa-shi Kyūfugata Shōgakukin Seido*).

The azbil Group's largest research and development site, Fujisawa Technology Center, is located in the city of Fujisawa in Kanagawa Prefecture. Due



Children from *Misono Kodomo no Ie* were invited to go on a tour of Fujisawa Technology Center. They enjoyed lunch at the employee cafeteria. They were also invited to the company's summer evening festival and had a chance to become acquainted with Azbil employees.

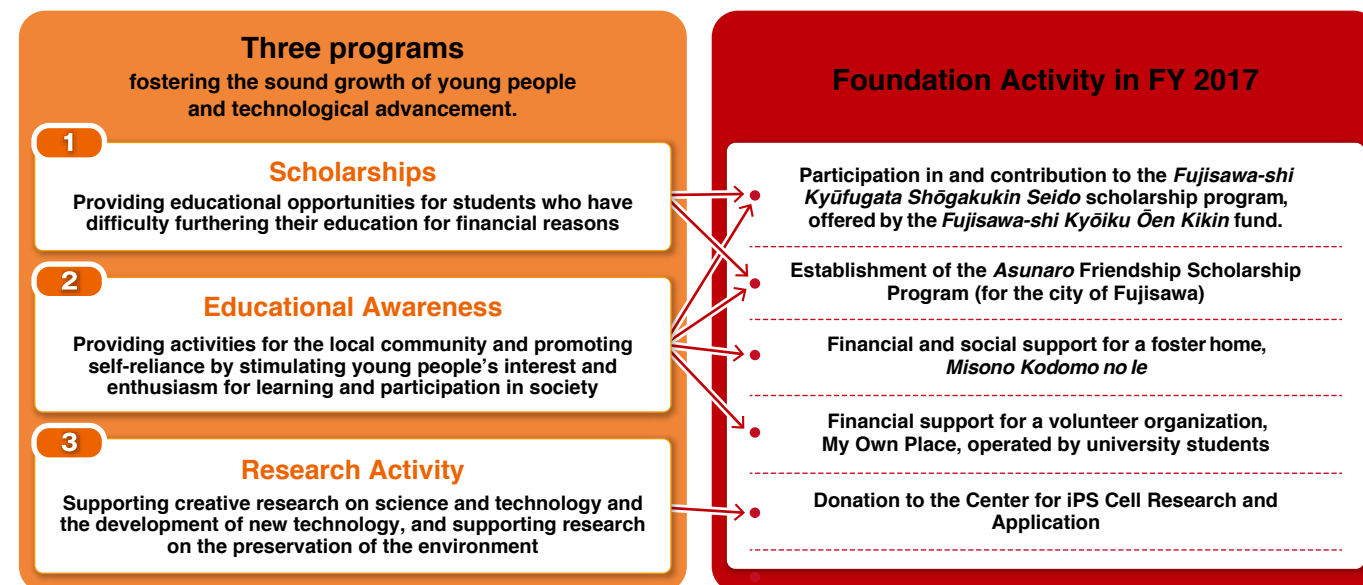
to the close relationship with Fujisawa, helping its citizens was the first activity of the foundation.

Fujisawa's scholarship program requires no repayment, so children with motivation and ability who live in Fujisawa can have the opportunity to study in a university or other institution despite a difficult financial situation. The foundation's donations provide a part of the scholarship's funds.

The scholarship is for high school students (or the equivalent) whose households receive public assistance or who live in a foster home. Scholars are selected based on documents and interviews. They receive a lump-sum grant before entering the university, etc., for use in enrollment preparation and for tuition fees during the regular academic term.*1

In addition to financial support, the foundation is involved in the scholar se-

Azbil Yamatake General Foundation's "Asunaro Friendship"



lection process, including interviews with students. These efforts were acknowledged by the city of Fujisawa in an award given in October, 2017.

The second activity of the foundation is the *Asunaro Friendship Scholarship Program*. The program was established jointly in 2017 by Fujisawa City Hall, by a Fujisawa social welfare corporation (the *Fujisawa-shi Shakai Fukushi Kyōgikai*), and by Azbil's foundation. To support a child who has a single parent in need of financial assistance, the program offers student grants at the time of enrollment in and graduation from junior high school. Households located in Fujisawa that receive the full amount of the child-rearing allowance*2 and that have a child who will enroll in or graduate from junior high school are qualified for this program. The foundation's role is to provide financial assistance for the program.

The foundation's third activity is supporting a social welfare corporation called *Misono Kodomo no Ie* (*Misono Children's Home*). *Misono Kodomo no Ie* is a foster home in Fujisawa where about 80 children from two to eighteen years old reside. In addition to monetary contributions, the foundation sends children cakes, etc., on Children's Day or Christmas, provides opportunities for social interaction by inviting children to Fujisawa Technology Center for a field trip or summer evening festival, and gives financial aid for their new life to

those who leave the foster home when they become eighteen years old.

Lastly, the foundation provides financial support to a volunteer organization named *My Own Place*, which is active in Fujisawa. *My Own Place* is staffed by about 20 university students, mainly from Keio University, and provides a place where children can stay. The organization rents space from a temple in Fujisawa in order to provide a modern-day *terakoya* (a primary school run by a temple in the Edo period). The students cook and play together with the children, and also help them with their studies. The director of the foundation visited the *terakoya* and was impressed by the university students' goodwill, which led to support of the organization.

Supporting the Creative Research and Development of New Technology

In addition to its efforts on behalf of children, the foundation supports research and development on the environment and on new technology for human health and for the future of Japan.

In fiscal year 2017, the foundation donated to the iPS Cell Research Fund to support Kyoto University's Center for iPS Cell Research and Application, whose director is Professor Shinya Yamanaka, a Nobel Prize winner. The center aims to produce new drugs for

intractable diseases and personalized medicine using iPS cells, and to promote iPS cell-based regenerative medicine. To implement practical applications of iPS cells and to provide many people with treatment using iPS cells, donations to the fund are used for purposes such as research on medical applications, establishment and protection of intellectual property on iPS cells, and longer employment of researchers. The foundation made a donation in support of making treatment available for a large number of patients.

Azbil Yamatake General Foundation's current work concentrates mainly on children in Fujisawa. While continuing those efforts, the foundation's aim is to expand its assistance to other locations in the future. It also intends to increase its support for the research and development of new technology.

Through its continuing work on projects, the foundation, now in its third year, is learning what kinds of support are useful. As the foundation continues to learn from its individual and organizational partners, its future work on behalf of people and organizations in need of support is expected to continue and grow.

*1: The scholarship by the city of Fujisawa is basically paid during the regular academic term at a university, etc. This scholarship does not require repayment. However, if a student fails to graduate due to poor academic performance, or leaves or is expelled, the scholarship will be terminated and repayment by the student may be required.

*2: Child-rearing allowances are provided to single parents by local governments for the purpose of promoting stability and independence.

Carbon offsetting is a concept or mechanism that enables individuals, companies, and others to offset (compensate for) their CO₂ or greenhouse gas emissions by purchasing credits or by emission reduction activity at other places.

Trading Offsets to Reduce Greenhouse Gas Emissions

Efforts to deal with climate change, for example by reducing the emission of CO₂ or other greenhouse gases, have been made, mainly by developed countries, around the globe since 1997, when the Kyoto Protocol was adopted. The Paris Agreement, adopted at the 21st meeting of the Conference of the Parties (COP 21) of 2015, established a new framework of voluntary target-setting for both developed and developing countries.

As initiatives on a global level accelerated, the important concept of carbon offsets was created. Because greenhouse gas is not unique to a certain region, the reduction of emissions anywhere on the planet has the same effect. Therefore, if some region, country, or organization cannot sufficiently reduce its CO₂ or other greenhouse gas emissions, the excess can be offset by the equivalent amount of greenhouse gas reduction or absorption by projects carried out at other locations.

The carbon offset mechanism has four major steps.

1. Understand the amount of greenhouse gas emissions made in daily life or in corporate activity.
2. Strive to reduce greenhouse gas emissions as much as possible through

energy-saving measures, etc.

3. Purchase offsets (credits) or reduce emissions at other sites to compensate for unavoidable emissions.

4. Offset any remaining emissions by the equivalent amount of credits.

The point is to first understand the amount of emissions accurately, and then to make efforts to reduce emissions as much as possible. If everyone intends to use credits without making an effort, carbon offset cannot reduce greenhouse gas emissions.

Showing Environmentally Conscious Policy Using Carbon Offsets

In carbon offsetting, credits are traded.

For example, suppose that Company A through various efforts has reduced its greenhouse gas emissions. It can then deposit credits to a carbon offset provider, who manages them. Company B, on the other hand, was unable to sufficiently reduce its greenhouse gas emissions, and therefore purchases credits, in an amount equal to its emissions, that were generated by Company A. With the credits, Company B can offset the emissions it produced.

A company that purchases credits can use them as one way to achieve its targets for reducing greenhouse gas emissions, and the company can also inform the public, etc., of its environmentally friendly policy. Purchasers can choose which credits to

buy after checking what kind of project generated them.

Carbon offsets can be used for conferences or events, in order to offset the CO₂ produced by event management, participants' transportation, etc. In fact, carbon offsetting has been used for a variety of conferences and events, including the G7 Ise-Shima Summit.

Use of Carbon Offsets Increasing to Meet 26 % Reduction by 2030

The carbon offset system in Japan is based on guidelines designed by the Ministry of the Environment, and there are various certification systems.

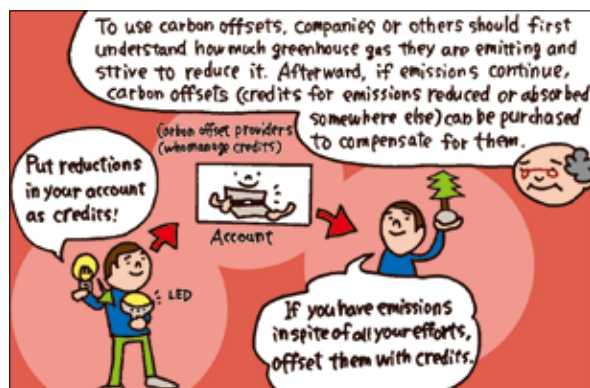
For example, with the Joint Credit Mechanism system, Japanese advanced energy-saving technology can be introduced to developing countries to reduce greenhouse gas emissions, and the reductions can then be used to achieve Japan's own reduction targets. The system can help developing countries where technology and products with high environmental friendliness are not yet common for economic reasons.

Under the Paris Agreement, Japan set the target of reducing greenhouse gas emissions by 26% (compared to fiscal year 2013) by fiscal year 2030, and is expected to use carbon offsets increasingly as it works to achieve the target.

Azbil's large diameter (125–150mm) model of its motorized two-way valve with flow measurement and control functions, ACTIVAL™+, is equipped with a flow rate calculation function that uses pressure measurements by sensors built into ACTIVAL+ valves used for air conditioning. This enables control of the volume of chilled and hot water even when the difference in pressure between the inlet and outlet fluctuates. Additionally, a temperature-sensing function helps users to understand the energy usage of each air conditioner, so users can have both comfort and energy savings.



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azbil

www.azbil.com/

Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.

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