

Kubota: sustaining growth beyond the next harvest

For Earth, For Life


KUBOTA Corporation

Kubota, a leading Japanese farm equipment and water infrastructure maker, continues its mission to sustain development by providing technologies to better produce food, supply clean water, and preserve the environment.

Two revolutions

Two revolutions in food and water boosted human development. First, the mechanization of farming liberated societies from millennia of back-breaking work in the fields and the misery of hunger. With less farmhands necessary, the surplus of human talent moved to cities. These dense urban conglomerations became engines of growth, but also generated pollution and disease. A second revolution in modern waterworks and sanitation then brought these threats under control.

These revolutions continue today. Emerging economies across the world are modernizing their agricultural production and building water systems to support burgeoning urban populations. But planetary challenges such as climate change mean smarter solutions will be needed to further these advances.

At the frontlines of these challenges is Kubota, a leading Japanese farm equipment and water infrastructure maker.

"Since its founding, Kubota has evolved its technologies to contribute in the areas of food, water and the environment which are indispensable to the development of mankind," says Masatoshi Kimata, President and Representative Director of Kubota.

"Looking forward, we will continue on this mission by setting sustainable development goals (SDGs) as our compass."

A history of life-sustaining technologies

In 1893, Kubota supplied the first iron pipes for Japan's waterworks and helped end the scourge of cholera in the country. Faced with food shortages in the post-war period, the company pioneered the world's first agricultural machines suited for rice paddies. The adoption of these labour-saving tools ended hunger while enabling workers from Japan's farming households to move to cities, fueling the country's post-war economic boom. When rapid growth generated pollution, Kubota responded in the 1960s by entering the water treatment business. In large part thanks to these innovations, Japan now has some of the densest cities, cleanest water, and healthiest populations in the world.

Kubota soon shared these life-sustaining technologies beyond Japan.

The company began exporting and became the first to locally manufacture rice-farming machinery overseas, starting in Thailand in the late 1970s. It is now the top global

supplier of tractors, transplanters, and combine harvesters to make rice, a vital staple which today provides a fifth of all calories in the diets of 3.5bn people, or half of humankind. Its brand ubiquity is such that in many countries, "kubota" has become a synonym for cultivators and tractors. Kubota's water pipes, first exported to Asia from the 1930s, are now carrying water in over 70 countries, while its water-purifying technology is recycling water in thousands of plants worldwide.

"The source of Kubota's strength is our philosophy to work hand in hand with our customers around the world at the actual site of their challenges to find solutions," explains President Kimata.

A relentless focus on delivering for societies' needs at ground-level has enabled the Osaka-based company to become the world's top supplier of farming equipment and water infrastructure, as well as a leading maker of engines, small construction equipment, and utility vehicles. For the year ended December 2018, the company marked record sales of 1,850.3bn yen (16.8 billion USD) and operating profits of 189.3bn yen, with 68.8 per cent of sales generated overseas. (IFRS, Year-end TTB USD = 110 yen).

Ploughing ahead

In the rice-farming business, Kubota is turning towards countries like Myanmar and those in sub-Saharan Africa where mechanization lags behind. These emerging economies will need more machines to replace a dwindling agricultural workforce drawn to cities, even as demand for rice surges. In Africa, for example, rice production has doubled in the past ten years and is expected to further double by 2030. At this point, rice is predicted to replace maize as the main staple in this continent with the world's fastest growing population.

Along with more people on the planet, a growing middle class and improved diets are expected to lead to rising demand for not only the staples of rice, wheat and maize, but also meat. Kubota sees both business and SDG opportunities in these trends.

"Kubota is accelerating the market deployment of large upland tractors as a way of supporting the growing global demand for grains and grass used as feed in the livestock industry," explains President Kimata.

To this end, the company acquired Norwegian Kverneland in 2012 and US Great Plains in 2016, two major makers of implements (various farming tools connected to tractors). Through the acquisitions, Kubota hopes to engineer ICT-enabled integrated control between the tractor and implement to achieve "precision farming". These steps have been complemented by the opening of an assembly plant for manufacturing large-scale tractors in 2015 in France. It also has plans to open a new R&D centre there by 2020.

Looking forward, climate change disruptions—rising temperatures, sea-water levels, and frequency of flash floods for example—are threatening crop yields needed to feed humanity. Among other initiatives, Kubota is developing tractors capable of deep ploughing and systems to provide farmers with information to optimize cultivation at higher temperatures.

Supplying water and preserving the environment

At the same time as finding better ways to feed the world, Kubota is working to provide clean water and hygiene for all. In recent years, the Japanese maker's durable ductile pipes have been installed in the densely populated capital of Bangladesh, under the deserts of the Middle East, and below the streets of earthquake-prone Los Angeles.

Precious water resources must not only be delivered efficiently, but also regenerated after consumption to ensure a sustainable water environment. Kubota's MBR (membrane bioreactor) technology combines microorganisms and membranes to filter out minute organic particles from wastewater more effectively than conventional activated sludge methods. MBR plants equipped with Kubota's membranes are serving various local needs across the world: producing reclaimed water from municipal wastewater; providing simple and compact treatment plants for towns and cities; and treating industrial wastewater from food processing factories.

Finally, throughout its businesses, Kubota has been committed to minimising its carbon-footprint on the environment. Consider its engines. With a history—even longer than that of Japanese car makers—of building engines, Kubota has gained a reputation not only for reliability and durability, but also fuel-efficiency. The company's range of 2,000 engine models covers regional differences in exhaust gas regulations, including Europe's stringent Stage V.

Another example of Kubota's environmentally positive products is the mini excavator which boasts top market share globally, with a particularly strong presence in Europe and the US. These quiet, clean, and compact machines have become the increasingly preferred option for construction work in dense and narrow urban environments.

For Earth, For Life

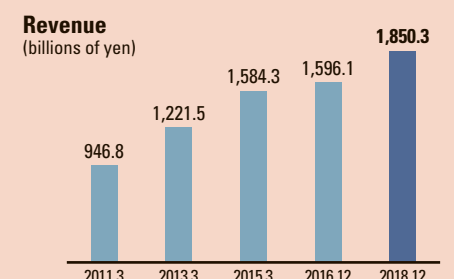
Across the globe, Kubota's disparate solutions are all working, as its company brand statement claims, "For Earth, For Life".

"We aim," President Kimata says, "to become not only a top company in terms of sales or profits, but also a brand that makes the greatest social contribution and is trusted by the largest number of customers."



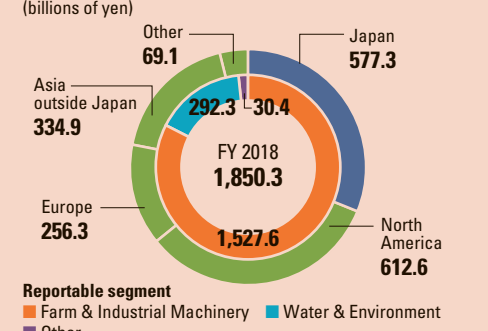
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Masatoshi Kimata
 President and Representative Director,
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Kubota Corporation changed its fiscal year-end from March 31 to December 31 since April 1, 2015.

Revenue by region and by reportable segment



A future of precise rice

JAPAN IS A PIONEER OF MANY OF the thorny challenges facing agriculture around the world: a shrinking, aging farming population; scarcity of land and resources; and increasingly discerning consumers. Thankfully, Japan is also a land of very high tech. This makes it an ideal nursery for developing tech-driven smart agriculture solutions.

By adopting cutting-edge robotics, sensors, ICT, and AI into its equipment, Kubota has become a leading farming innovator helping farmers sustainably maximise crop yields and quality with minimum input.

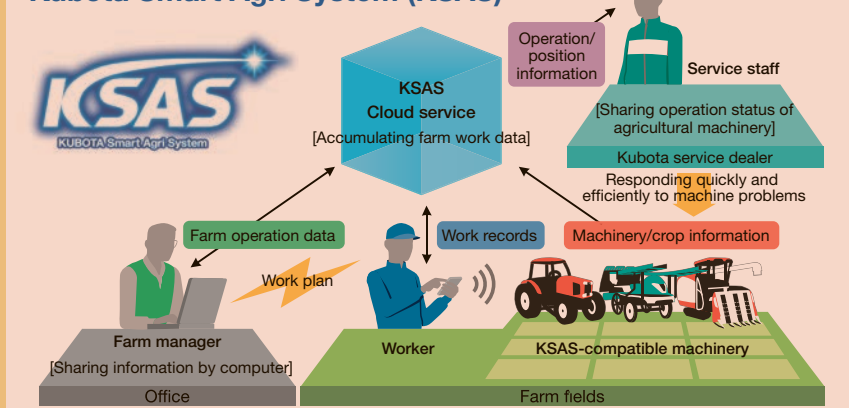
In 2014, Kubota launched KSAS (Kubota Smart Agri System), a cloud-based agricultural management service integrating and visualizing data collected from Kubota's farm equipment. Already more than 6,000 farms in Japan are using this ICT system to save labour and achieve higher quality harvests. KSAS digitally tracks how crops have been grown including pesticide use,

thereby also helping farmers in audits like GAP which verify the safety of produce.

The company brought to market in 2016 the industry-first, GPS-equipped and automated "Agri Robo" tractors, followed by transplanters and combine harvesters, for use in paddies. In the future, Kubota envisions that these unmanned farm machines will be linked together and remotely operated in separate fields, all the while collecting data from soil and crops.

This year Kubota has intensified its commitment to develop Japanese-style "precision farming" for the world. In February, President Kimata earmarked 70bn JPY for a new global research centre in Osaka for developing smart agricultural technologies and solutions. In May, the President also unveiled plans for two other open innovation centres, one in Japan and the other in the Netherlands. The centres will work together with venture firms, companies from other sectors, universities and research institutions to generate ICT and AI-driven solutions in agriculture.

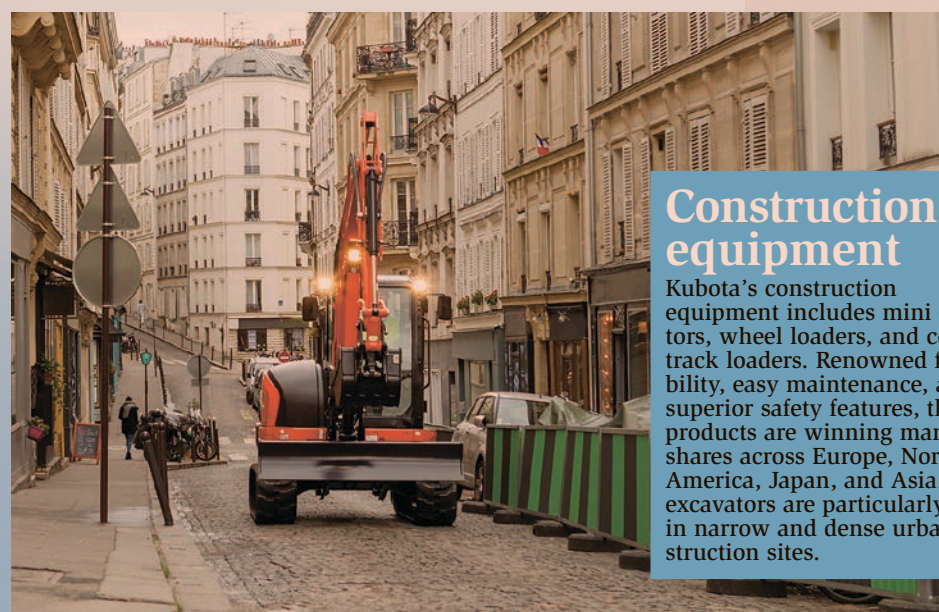
Kubota Smart Agri System (KSAS)



Agricultural machinery



As a longstanding leader in the field, Kubota offers a wide range of small to large-sized tractors with a reputation for durability and manoeuvrability and which are used in diverse settings including paddies, upland areas, orchards, farmsteads, and gardens. Recently, the company has been introducing larger tractors, starting with the new M7 series, for large-scale commercial farming.



Construction equipment

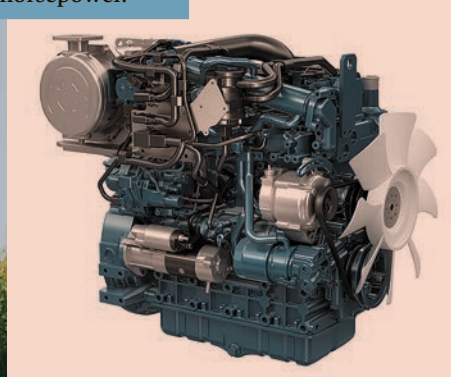


Kubota's construction equipment includes mini excavators, wheel loaders, and compact track loaders. Renowned for durability, easy maintenance, and superior safety features, these products are winning market shares across Europe, North America, Japan, and Asia. Its mini excavators are particularly effective in narrow and dense urban construction sites.

Engines



Kubota is the world's leading manufacturer of both compact diesel and gasoline engines for industrial, agricultural, construction and generator applications. The company has a range of more than 2,000 specifications, cumulative production of over 30m units, and top share of industrial diesel engines below 100 horsepower.



Water & Environment



With over a century of experience in production, Kubota's ductile iron pipes are being used in over 70 countries worldwide. Using proprietary casting technologies, Kubota manufactures ductile iron pipes of diverse diameters, earthquake-resistant joints, restrained joints, and the world's longest pipes (nine metres) with excellent strength, durability and corrosion resistance.

