

BUILDING TRUST THROUGH CLEAN WATER: JAPAN'S CONTRIBUTION TO WATER PURIFICATION

Almost two and a half decades ago, a small Japanese company developed PGα21Ca, a water-purification agent that has since become renowned worldwide as a “magic powder” that produces clean water. When mixed with dirty water, impurities clump together leaving clean water behind. Now used in many countries across the globe, the binding agent has made clean drinking water available to millions of people around the world, creating jobs for those who work with this essential resource.



Children in Bangladesh rejoicing at the sight of purified water.

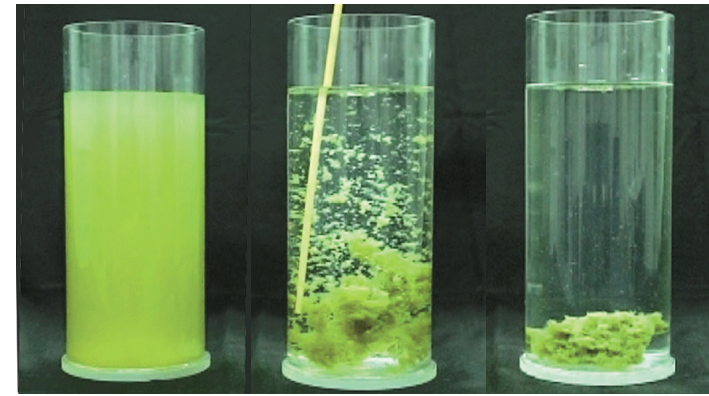
Nippon Poly-Glu Co., Ltd., a small to medium-sized enterprise (SME) headquartered in Osaka, was founded in 2002 by the late ODA Kanetoshi, its long-serving chairman and CEO. Since then, the PGα21Ca water-purification agent he developed has been cleaning contaminated water for people around the world.

It all began with the devastating

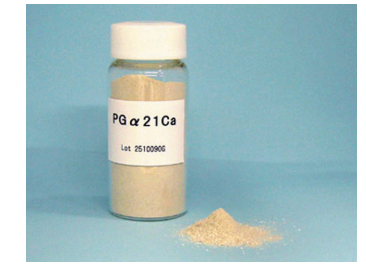
Great Hanshin-Awaji Earthquake that struck Kobe and the surrounding region in January, 1995. While people in the disaster zone were struggling to access water, Oda looked at a nearby pond and thought, “If only this water were usable.” He recalled reading that polyglutamic acid, found in the sticky constituent of *natto* fermented soybeans—an

essential part of Japanese culinary culture—has powerful water-purifying properties, so he started researching it. After some six years, he succeeded in developing PGα21Ca, a white water-purification powder combining polyglutamic acid and calcium compounds, and established Nippon Poly-Glu to manufacture and market the substance.

The water-purification process through PGα21Ca is simply explained and understood. Since dirt particles carry a negative charge, they repel each other and remain suspended in the water without coagulating or sinking. When PGα21Ca is added, however, the positive charge of the calcium compound works to neutralize the particles, triggering coagulation. The polyglutamic acid further enhances binding, causing impurities to clump together and



Left: The water-purification process using PGα21Ca. As the agent is added and stirred, impurities bind together, sink, and settle at the bottom, leaving clean water behind. Below: PGα21Ca.



sink when the water is stirred in a certain direction. The treated water can then be filtered, swiftly producing clean drinking water at a speed of about one minute per liter.

What spurred PGα21Ca's subsequent global expansion was the massive earthquake and tsunami off the Indonesian island of Sumatra in December, 2004, which caused widespread damage throughout the Indian Ocean region. At the request of the Royal Thai Consulate-General, Osaka, Nippon Poly-Glu assisted with water-purification efforts in Thailand. Three years later, in 2007, the company delivered 100 kg of PGα21Ca to Bangladesh after a devastating cyclone hit in mid-November. To date, an estimated 18 million people in around 80 countries have benefited from Nippon Poly-Glu's water-purification agent. In Tanzania, some children even composed a song to express their gratitude to Oda:

We once drank dirty water and our friends passed away of dysentery.

Diarrhea sometimes made us miss school.

We pray to God that Poly-Glu comes to our town soon.

One of the project's key concerns for Oda was its sustainability. Seeing expensive septic tanks from overseas donors abandoned due to lack of maintenance, he designed a water supply system using readily available local materials, such as simple tanks, ensuring it could be operated and maintained by the local community. To establish long-term, sustainable access to clean water, Oda made sure that he received a small compensation fee from locals so that his products were viewed as a business transaction rather than one-time, free aid. One ripple effect of the company's activities has been the development of employment opportunities. An estimated 1,500 jobs have been created in 40 countries, including the company's Poly-Glu Boys, who manage water supply equipment, and Poly-Glu Ladies, who demonstrate and inform people about water purification.

Although Oda passed away in 2024, his wife Oda Setsuko, president of Poly-Glu Social

Business Co., Ltd., continues his work and mission. Recalling her late husband, she said, “He often spoke about how the red passports Japanese people carry represent the trust built around the world by Japan's previous generations. Not wanting to betray that trust, he hoped the world would benefit from his technology.”

During the COVID-19 pandemic, business suffered, and the company faced export difficulties. However, international partners sharing in Oda's philosophy established distributors in seven countries, continuing efforts to share the technology, such as for purification of water for shrimp farming in Vietnam and purification of rivers and industrial wastewater in India. Company publicist KISHIDA Hiroko said, “Even in regions where people lost access to the purification agent due to the pandemic, Oda promised that we would return. We want to honor that promise and live up to their trust in us.”



ODA Setsuko (left), president of Poly-Glu Social Business Co., Ltd., and company publicist KISHIDA Hiroko (right).

Left: Two Bangladeshi Poly-Glu Ladies (left) demonstrate water purification and sell clean water. Right: ODA Kanetoshi, founder of Nippon Poly-Glu Co., Ltd., explains how water purification works to locals in Bangladesh in 2006.

