



Overview of small hydro power generation

- Environment surrounding small hydro power generation in Japan -

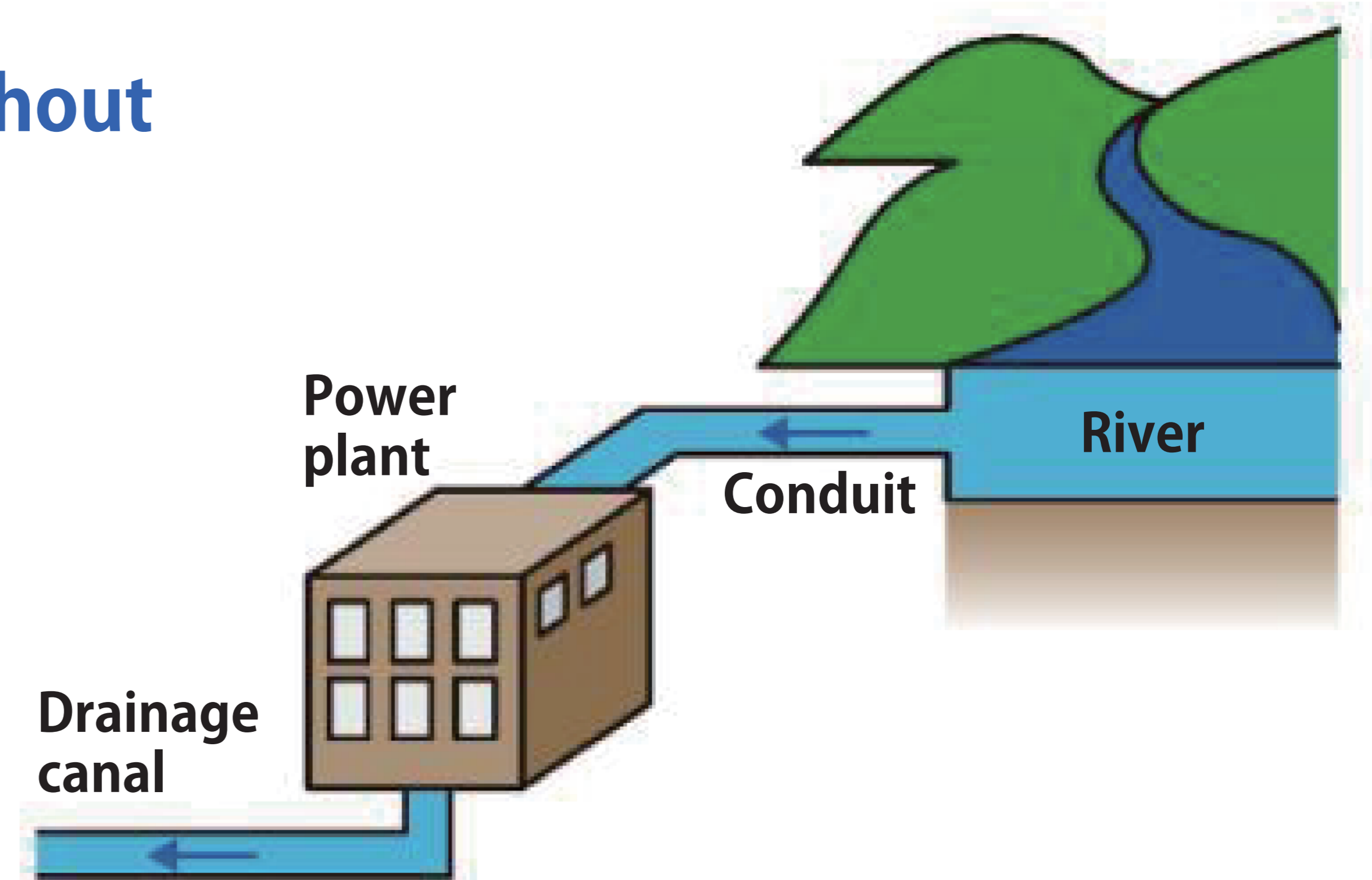
Expected as an energy source with local symbiosis

The expansion of hydro power generation is considered to be an effective means of achieving carbon neutrality by 2050. The Sixth Basic Energy Plan of the Agency for Natural Resources and Energy also states that hydro power generation is "a purely domestic source of energy which can be utilized

long-term with excellent stability of supply which is not affected by weather conditions, except drought problems and also expected to expand its role as an energy source with local symbiosis."

Effectively utilize the potential widely available throughout Japan with the "run-of-the-river" method

Among the hydro power generation methods, small hydro power generation mainly uses the "run-of-the-river" method, in which water flowing into rivers, agricultural water, water supply and sewerage systems, etc. is taken directly without being stored in dams, and the energy of the water is used to turn waterwheels. Though not strictly defined, small-scale power generation systems with an output of 1,000kW or less are often collectively referred to as "small hydro power generation". The potential for introduction exists widely throughout Japan and is expected to be utilized effectively.



Small hydro power generation with the run-of-the-river method
Source: NEDO Renewable Energy Technology White Paper, 2nd Edition

NEDO's initiatives

The "New Energy Demonstration Program for Future" is part of NEDO's "Technology Research and Development Project for Exploration and Commercialization of New Energy Seeds" which promotes cross-sectional support in the field of renewable energy. Through this program, NEDO is implementing projects to support companies that are working on research and development, and technology demonstration that contribute to lower cost and higher efficiency in new development and replacement of small hydro power facilities and its existing facilities as well.

Introduction of the project

1) Non-electric garbage removers to be installed in small hydro power generation plants

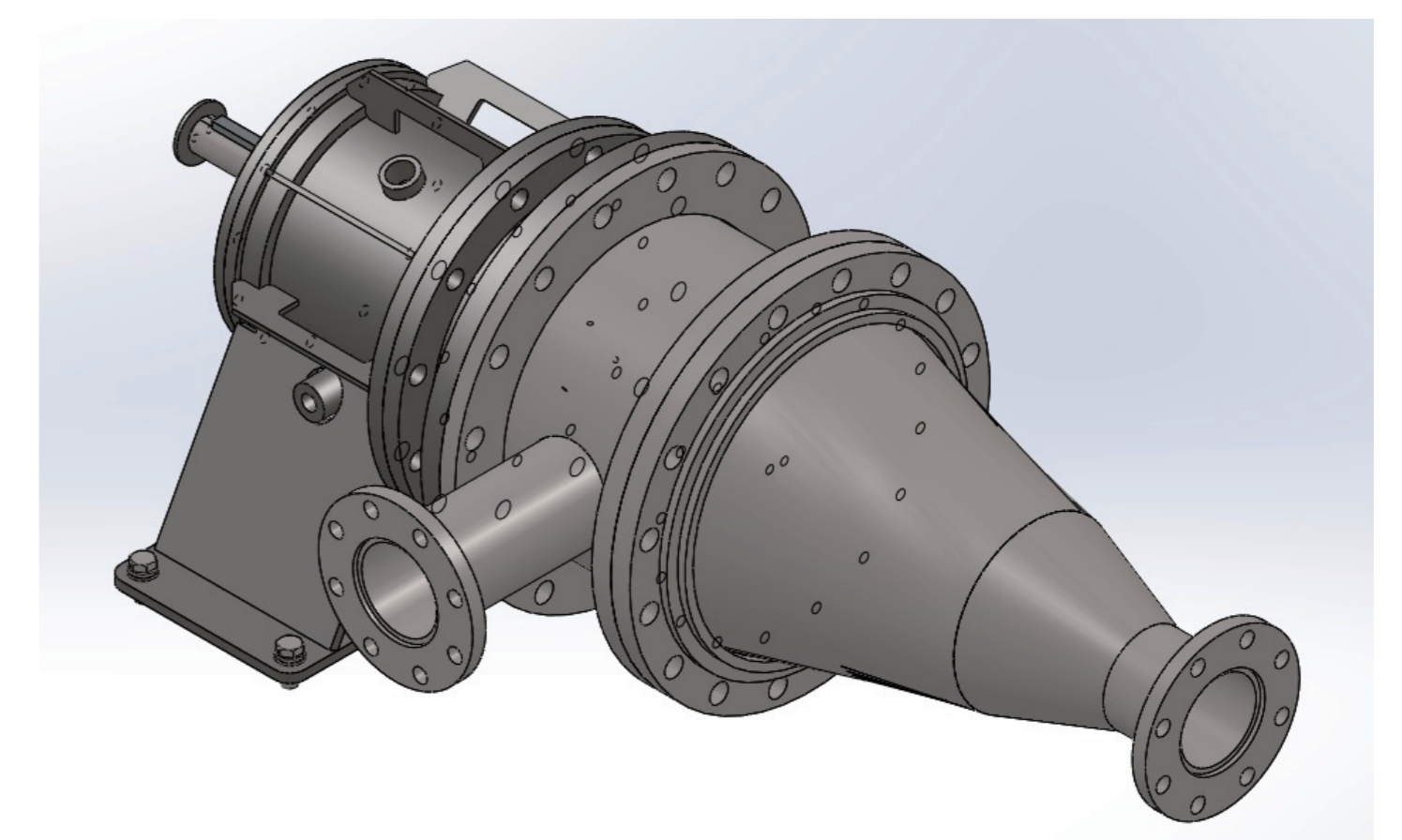
The aim of this project is to develop sustainable and cost-effective products which contribute to improvements in competitiveness of small and medium-sized operators through technology demonstration of non-electric garbage removers using water flow in headrace.



Non-electric garbage remover
Source: Aratani Civil Engineering Consultants Co., Ltd.

2) Development of a submerged impulse hydroturbine for electric power generation at high head and small flow

The aim of this project is to clarify issues and develop products rapidly by grasping the applicable head upper limit and power generation performance, evaluating durability, and pursuing convenience in operation of water supply business.



Shape of submerged impulse hydroturbine
Source: Ebarashoji Co., Ltd.