R&D of development of strategic asset management technologies for trunk agricultural water facilities

Isamu Nakajima (Head of Facilities Maintenance Unit, Institute for Rural Engineering, NARO)
Waltun Ltd., TRIBOTEX Co. Ltd., Kubota Corp., Reitaku University, Ishikawa Prefectural University, Fukushima Agricultural Technology Centre, Okayama University

Contents of R&D

1. Development of technology to detect locations of leaks in water pipes
2. Development of technology to monitor the state of and to maintain pumping equipment
3. Development of systems to support preparation of trunk water facility renewal and improvement scenarios
4. Development of a method of providing information to pass on agricultural water facility management technologies
5. Building a personnel training and research network centered on local universities

Current Accomplishments (1/2)

- Detection of water leakage position by small submarine type leakage exploration robot
- Lubricating O I Diagnosis method (oil extraction - analyze and quantitatively diagnose equipment deterioration)
- Developing on-line inspection and diagnosis technologies for trunk agricultural water facilities
- Developing technology for better accuracy on inspection and diagnosis technologies

Current Accomplishments (2/2)

- Developing on-line inspection and diagnosis technologies
- Developing a system to support preparation of trunk water facility renewal and improvement scenarios
- Developing a method of providing information to pass on agricultural water facility management technologies
- Building a personnel training and research network centered on local universities

Support technologies

- Equipment development
- Improvement on technical manuals
- Development of on-line inspection and diagnosis technologies
- Building a support and personnel training system for trunk agricultural water facilities

Goals

1. Leak diagnosis robot, section leak investigation
2. Remote monitoring of pump system
3. Building a personnel training and research network centered on local universities
4. Preventing equipment breakdown
5. Nationalization of technological development

Current systems to support preparation of trunk water facility renewal and improvement scenarios

- Method of providing information to pass on agricultural water facility management technologies

Development of support and personnel training system to prevent weakening of maintenance organizations

Overview of the Research

- Development of inspection and diagnosis technologies for agricultural water facilities in Monsoon Asia

Development of new inspection and diagnosis technologies to maintain the functions of agricultural water facilities, including a total of 400,000 km of agricultural water canals and about 12,000 km of pipelines.

- To develop a maintenance information database and a personnel development system in order to support organizations and technologists who maintain facilities.

- To improve the inspection, monitoring, and diagnostic capabilities of agricultural water facilities and to develop technologies that support personnel training and research networks.

- To develop technologies for trunk agricultural water facilities and to support personnel training and research networks centered on local universities.

- To develop a method of providing information to pass on agricultural water facility management technologies.

- To develop a personnel training and research network centered on local universities.

- To develop new inspection and diagnosis technologies to maintain the functions of agricultural water facilities.