

# Mitsuke City

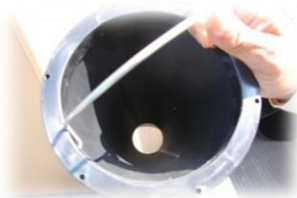
## Enhancement of rainwater storage capacities using rice paddies



### Situation

- Mitsuke City suffered heavy damage from the 2004 July 13 water disaster, which caused levee breaches at a state-administered Class A major river.
- It was necessary to start building rice paddy dams to reduce the amount of water released from rice paddies on the riverfront and to protect local areas from massive water damage.

### Intervention



- The Niigata University research team and Mitsuke jointly developed Mitsuke Model new adjustment pipes, which fully serve their intended functions at any time without relying on adjustments by agricultural producers.
- They can reduce the amount of water released from rice paddies in times of heavy rain and reduce water damage on farmland and urban areas on the riverfront.

### Impact

- The project has been shown to be highly effective, with Mitsuke's newly introduced adjustment pipes confirmed as capable of reducing the amount of water released at peak times during heavy rain by 80%. Simulations based on a past natural disasters confirmed the effectiveness of the pipes in substantially reducing disaster damage.
- The result of an analysis of the project's effectiveness by a Niigata University research group in fiscal 2011 is as follows:
  - **Rain Conditions**
    - Total rainfall of 231 millimetres, maximum 24-hour rainfall of 167 millimetres, maximum hourly rainfall of 45 millimetres
  - **Effects Shown in Analysis**
    - Reduces area of inundation up to ground level in urban districts by 93%
    - Reduces area of inundation above ground level in urban districts by 100%