

INFORMATION ON DOCTORAL THESIS

1. Dissertation title: Study on scientific bases to develop inter-reservoir operation procedures for flood control in the Ba River basin.

- Code: 62440224

- Major: Hydrology

2. PhD candidate: Luong Huu Dung

Supervisors: Assoc. Prof. Dr. Hoang Minh Tuyen

Prof. Dr. Ngo Dinh Tuan

Degree-granting Institution: Viet Nam Institute of Meteorology, Hydrology and Climate Change

3. Summary of the Dissertation:

Subjects and scope of the dissertation are a system of 6 reservoirs (Ka Nak, An Khe, Ayun Ha, H'ngang, Ba Ha and Hinh) and the flood flow regime on the Ba River basin. The thesis focuses on developing inter-reservoir operation principles to mitigate flood damages, protect downstream area, and ensure efficiency of water use.

Objectives of the study:

- Develop the scientific and practical bases to build the operation rules for reservoir systems to reduce flood damages in downstream of the Ba River basin considering downstream flood protection and water use efficiency;

- Propose inter-reservoirs operation procedures for downstream flood prevention in the Ba River basin.

Principles of inter-reservoir operation procedures for flood control:

The inter-reservoir operation rules are determined based on the following principles:

- Coordinate the operation of reservoirs in the system based on the adjusted role of each reservoir to mitigate flood damages;

- Water level at downstream and flood flow to reservoirs serve as basis to determine proper flood capturing capacity of the reservoirs;
- Effectively operate the reservoir system without compromise the capacity to generate power and supply water for other purposes as designed.

Main contents of the study:

- Segmentation of reservoirs operation periods;
- Determination of control points and constraints in operation process;
- Identification of the roles of reservoirs and coordination mechanism of reservoir system in flood control operation procedures;
- Determination of releasing time and lowering water levels before flood season;
- Determination of the time for flood compounding and flood mitigation efficiency;
- Reservoir operation for flood control and downstream protection;
- Study of water storing in the late flood season.

4. Contributions of the study:

- Develop the operation problem of flood control for multiple reservoirs in Ba River basin based on adjustment of the flooding control role of the reservoirs in the system while ensuring the other functions of the inter-reservoir system including power generation and water supply for downstream;
- Establish scientific and practical bases for determining the flood storage capacity and coordination mechanism of reservoir system to mitigate downstream flood damages in the Ba River basin;
- Propose the adjustment of inter-reservoir operation rules in flood season in the Ba River basin.

Supervisors

PhD Candidate

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