

## LAB 5: Watershed and Stream Network Delineation

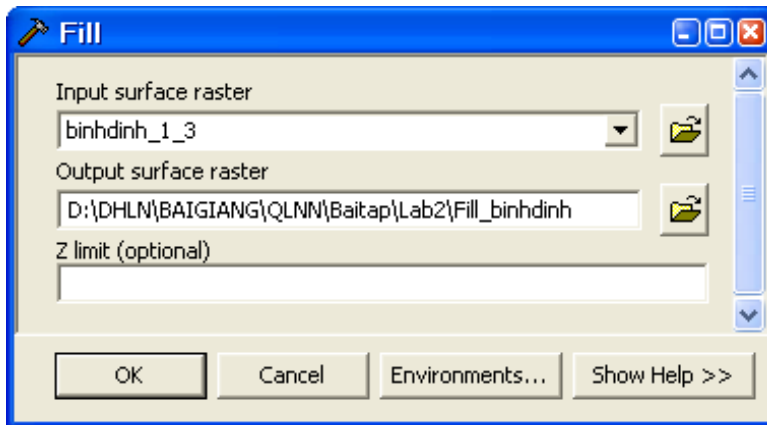
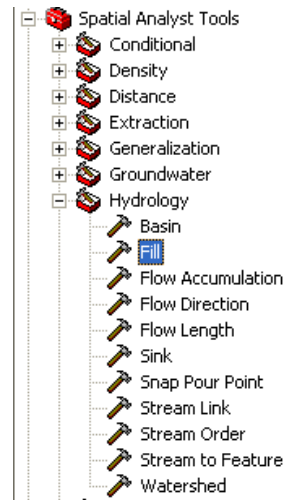
Tran Quang Bao

### Part 1. Digital Elevation Model (DEM) and Stream Network Delineation

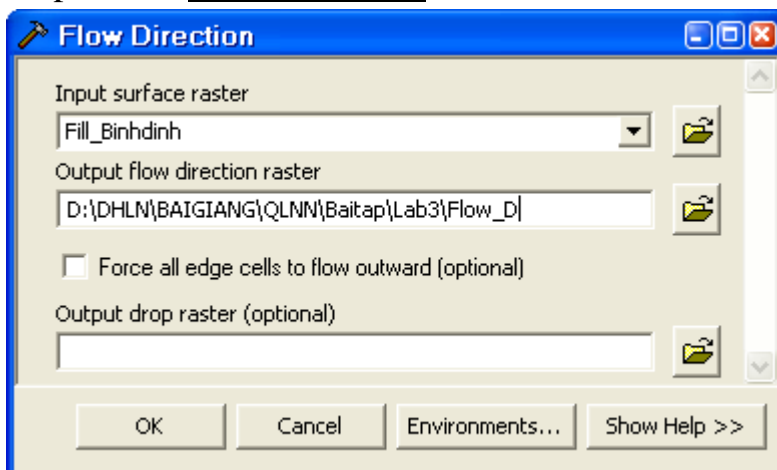
Step 1: Open ArcMap

Step 2: Activate **Hydrology** Tool in Spatial Analysis Tools

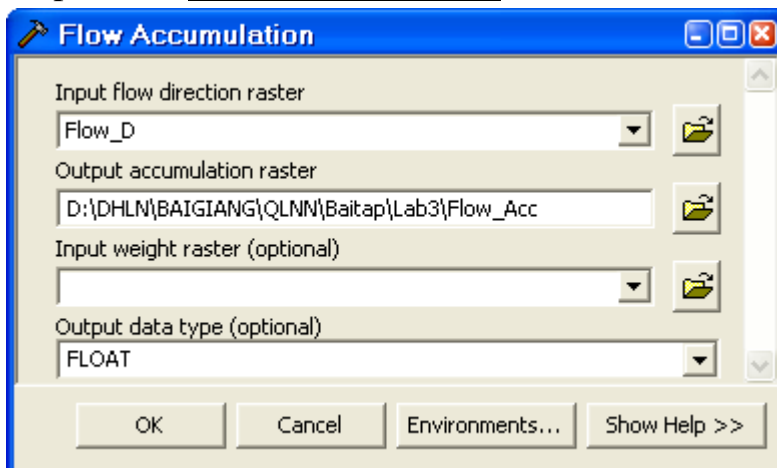
Step 3: Use **Fill** Tool to remove or fill pits



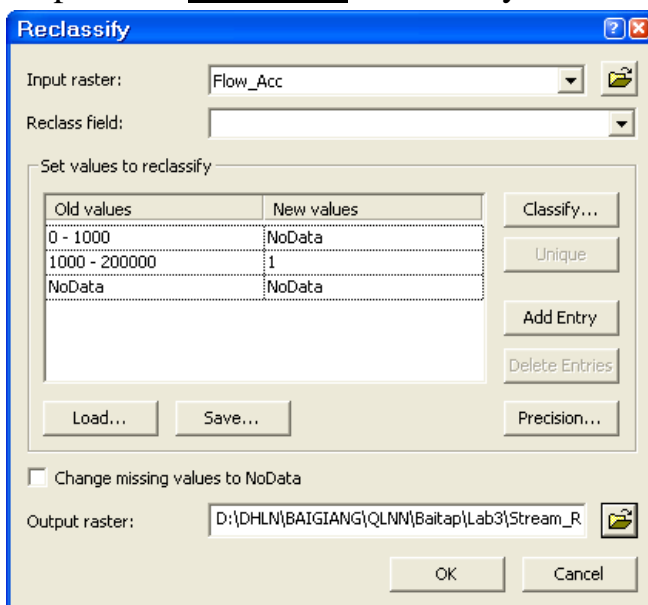
Step 4: Use **Flow Direction** to determine flow direction



Step 5: Use **Flow Accumulation** to determine water accumulates

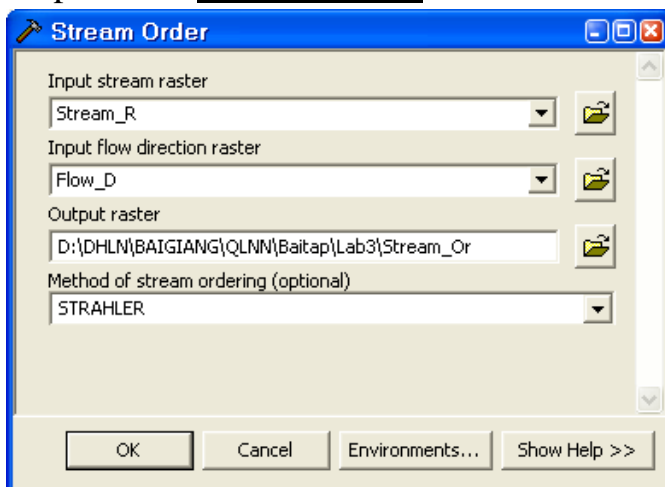


Step 6: Use **Reclassify** to identify stream network (raster)

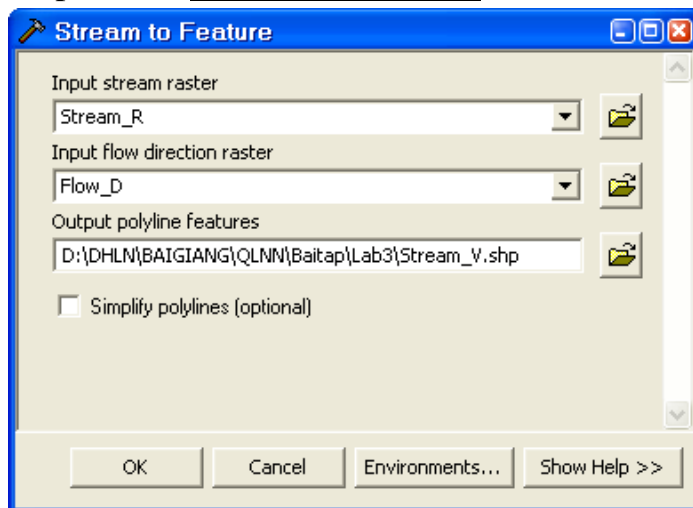


*\* Notes: Choosing a threshold depending watershed number*

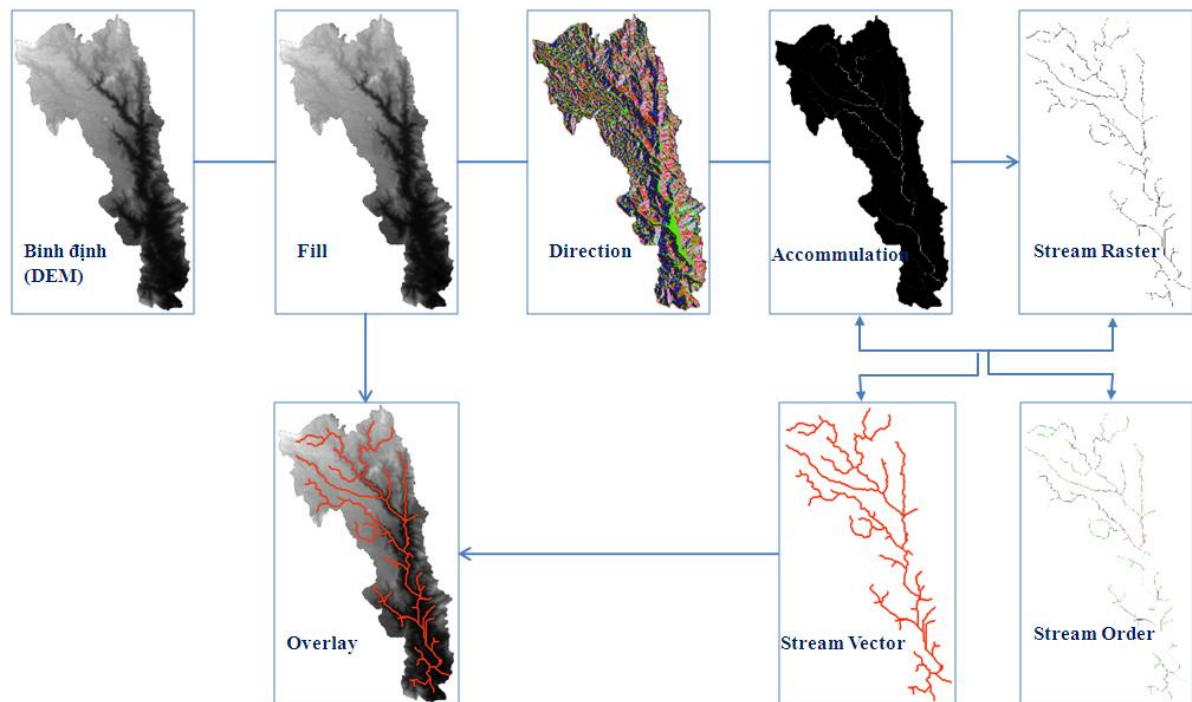
Step 7: Use **Stream Order** to determine Stream Order



Step 8: Use **Stream to Feature** to convert stream network from Raster to Vector



Step 10: Use Powerpoint to create a flowchart as following:

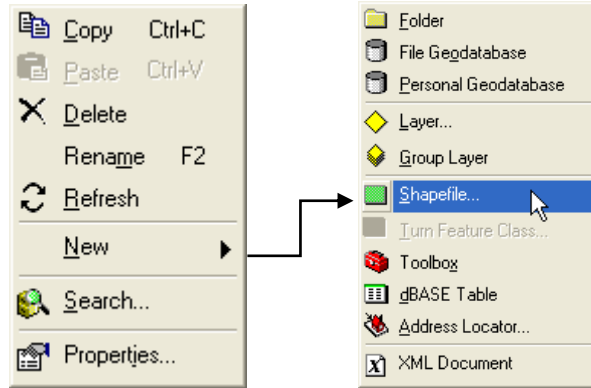


**Flowchart for Stream Network Delineation of Watersheds**

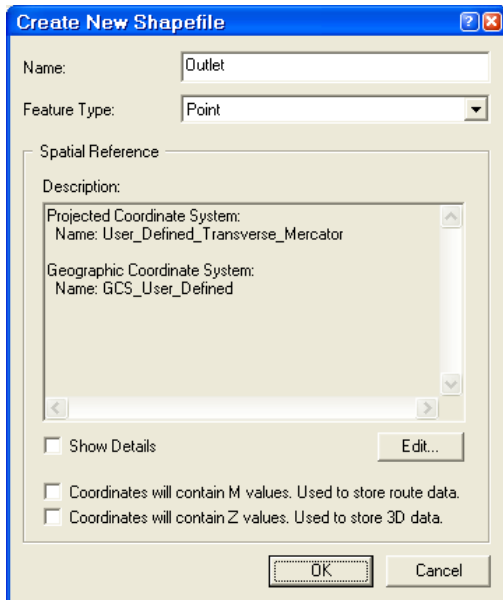
**Part 2. Delineation of Watersheds**

**Step 1: Identify Outlet of the watershed**

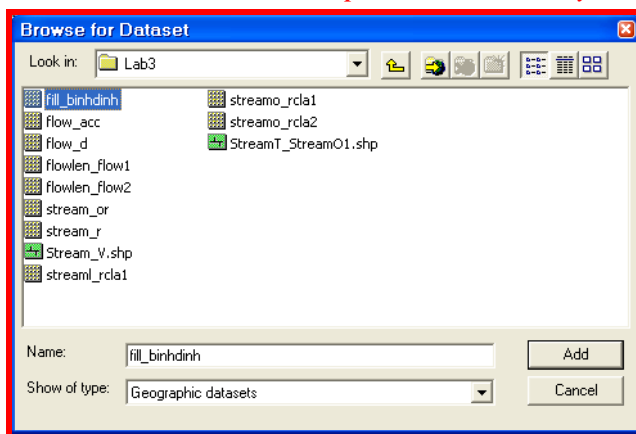
- Use ArcCatalog to create a new shapefile (point)
- Right Click in ArcCatalog , choose **New =>Shapefile..**



- Put a name for new shapefile (**Outlet**)



*\* Note: Click Edit => Import Coordinate Systems*



- Add **Outlet** Layer in ArcMap

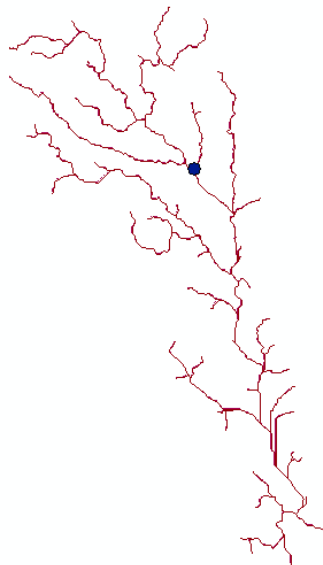
- Activate Editor Toolbar (View =>Toolbar... => Editor)
- Click Editor => Start Editing



- Choose **Create New Feature** for Outlet file

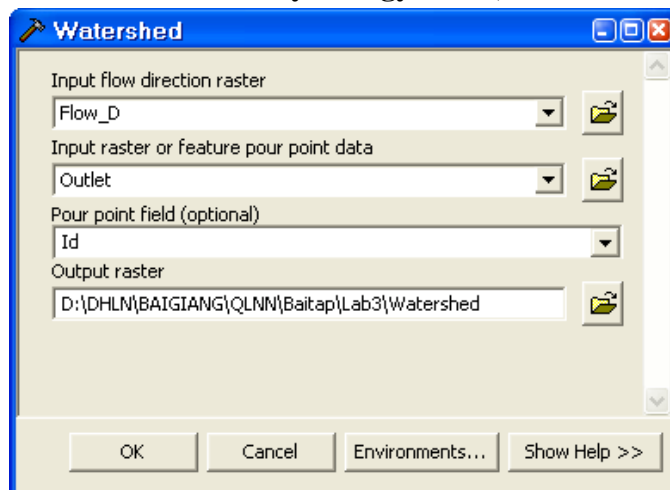


- Choose a location for Outlet in Stream Network

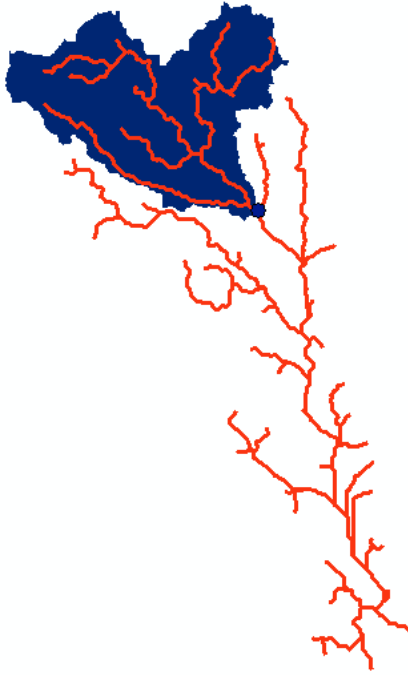


## Step 2: Watershed Delineation

- Use **Watershed** in **Hydrology** Tool (ArcToolbox => Spatial Analysis)



- Create a layout of watershed



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**TURN IN (two pages in color printing):**

- **A Flowchart of Stream Network Delineation**
- **A Layout of Watershed Delineation**

Note: This lab needs to be completed individually and should reflect your own, independent work. You will have one week to complete this lab assignment.