

### Mission Statement:

As a master student in the IIT KHARAGPUR. In Hydraulic Engineering and River Basin Development, I would like to work in the field of Hydraulic modelling and conservative management of river basin. In the hydraulic modelling, I will mainly focus on the 2D and 3D flow routing in channels, which is critical portion of flood risk management. Moreover, in the field of sediment modelling where the area is less considered in Afghanistan, I will be working on the sediment model along with the 2D hydraulic model. Therefore, this will give result in a better management of river basins in Afghanistan where most of the region is mountainous and sediment load is higher. Mainly the upper and middle portions of Helmand River Basin is vulnerable to land cover degradation due to its steep terrain and almost no vegetation cover. Therefore, this work will enhance the management of Helmand River Basin.

### Three Main Activities:

1. As a student, I will try to upgrade my self with the development environment in IIT KHARAGPUR. So that I can easily obtain the most of knowledge through my master course.
2. I will focus on my research in the area mentioned above. Especially in hydraulic modelling and sediment transport which is vital area in the field of hydraulic engineering and river basin development. firstly, I will create a 3D flow model with Delft 3D which will predict flow depth, velocity and extent. Secondly, I will couple the sediment model with it so that it can predict the flow and sediment load. Finally, I will apply the model to upper and middle Helmand River Basin as a case study. This will result a clear picture of flow and sediment in the Helmand River Basin.
3. After graduation, I will apply my knowledge in Helmand River Basin. In addition, I will share my achievements within the organization and other academic institutions here in Helmand.

### Relevance of the Study Program:

- a. The candidate in his undergraduate course studied civil engineering, and then started working the Helmand River Basin, where his position is Water Affairs Manager for the Managing of water in irrigation, water supply, Basin drainage, and reaching to conflict over water allocation. So his skills and knowledge has been grown in the hydraulic engineering since he started working. Thus, the study program is a perfect match for his academic career.
- b. The Helmand River Basin is mainly focusing in the development and enhancement of hydraulic structures where the most of its budget is spent on protection works such as retaining wall, check dams and so on. Therefore, the study program will be a good opportunity to choose their candidate for this program. As a result, the Helmand River Basin will have a graduate employee trained and studied in an international institution, which is a big achievement for Helmand River Basin.