Building the Dam

There is a strong case to build the dam when considering a discount rate, where you would have a positive NPV at discount rates of 3%, 5%, and 10%. At a 3% discount rate, the NPV is above $7 million in net positive gains. Coinciding with these positive NPV’s, the discount rates of 3%, 5%, and 10% all provide a BCR that is greater than one, with the 3% discount rate giving a 62% positive deviation from one. These economic benefits at the discount rates besides 20% would also likely provide several socio-economic benefits, such as job creation, increased agricultural production, as well as a rise in land value due to a new revivor created. This reservoir will also provide ample opportunities for socio-economic development in recreation, where the lake will provide new fishing opportunities, amounting to an expected $50,000 annual gain following the fifth year, with the establishment of stocked fish. Similarly, the new reservoir could also provide a suitable opportunity for an inland aquaculture facility given the recreational fishery is suitable.

Not Building the Dam

The socioeconomic and ecological impacts associated with building the dam are difficult to value, yet their impacts are so significant and far reaching that building the dam should not be considered at any discount rate. There are significant threats to aquatic and terrestrial biodiversity that are dependent on the current watershed dynamics, such as the sediment and nutrient flows of the system. Some of the species that will most certainly be affected are essential to the subsistence fisheries, which not only have tremendous cultural value, but also provide essential food stuffs for rights holders and their dependants. The cascade of ecological impacts from such a large scale project are unprecedented, as the impacts on food web dynamics and genetic diversity could prompt completed regime shifts in the ecosystems to a lower productivity system overall. These ecological impacts also highlight the potential impacts on communities reliant on current ecological health of the system, where large changes in the current ecosystem could disrupt or halt traditional practices or harvest. Along the same lines, the physical footprint of the dam will likely result in losses of some sacred sites or the complete alteration of others upstream or downstream of the dam. While the short-term economic gains in the first 20 years following the dam build are substantial, the long term socioeconomic and ecological losses will likely result in a much larger net loss overall.