

04. PHYSIOGRAPHY OF STUDY AREA

Location:

The entire Nagaland state consist an area of 16,579 km² which lies between 25°6' and 27°4' N latitude and 93°20' and 95°15' E longitude (Figure 1). The state is consecrated by varied seasonal and perennial rivers, which support a wide diversity of fishes including ornamental fishes. Fishery resources of the state are meager, comprising about 1,400 sq. km of lentic and 1,650 km of lotic aquatic resources, including 49,790 ha of lake/ponds/tanks/reservoir, and 82,500 ha of impending paddy-cum-fish culture areas. Currently, the lakes and reservoirs within the whole state contain about 3,528 ha in size, while Nagaland has numbers of capabilities targeted to developed more reservoirs in upcoming days, that surely improve the wealth status linked to sport fishery, freshwater fish culture over and above the higher production rate.

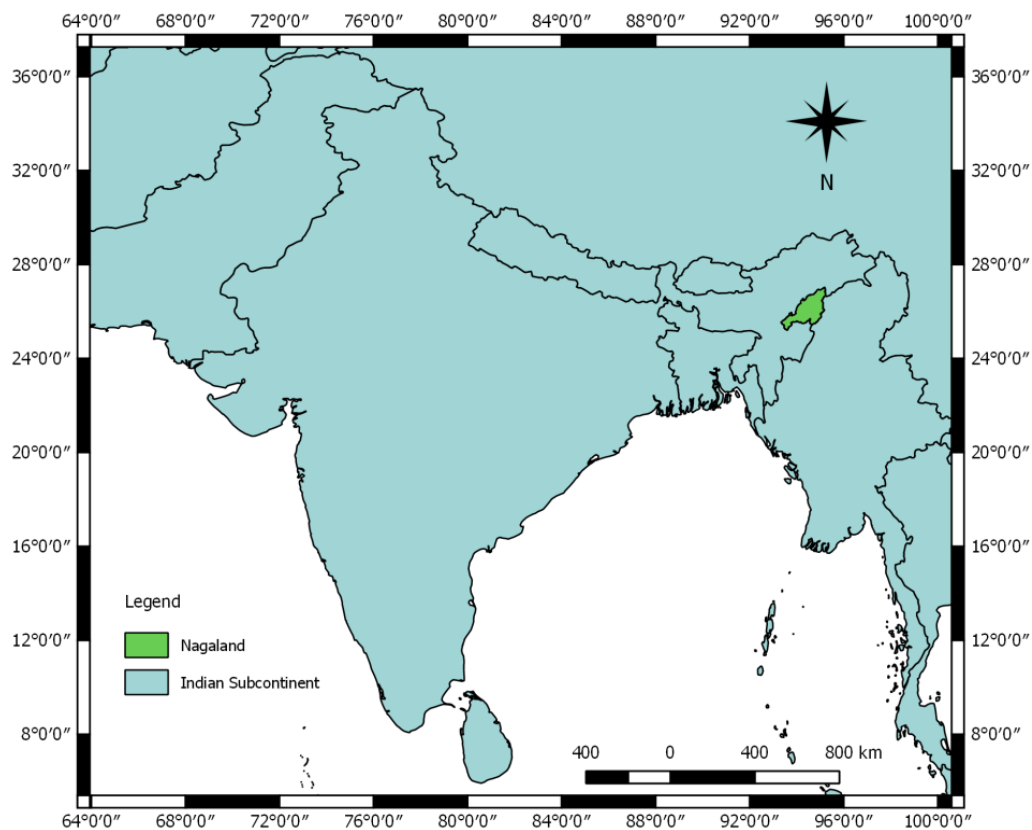
Doyang Reservoir located at Wokha district, Nagaland is considered the biggest reservoir within the North-East province of the country and is positioned between the coordinates 26°13'10" N and 94°17'90" E (Figure 2 and 3). The Doyang Reservoir having a catchment area of 2258 ha falls under the group of "medium reservoirs" and its source of water are rivers namely Doyang, Chumeya, Tzuza, Chubi and Djupvu (Table 1). Subsequently, the reservoir holding significant aspects about the ichthyofaunal diversity is a promising source of employment generation, suitable livelihood and leads to increase in number of local fishing communities.

Morphometry and hydrology:

Morphometric and hydrographic factors are the two requirements for efficient management of reservoirs. The morphometric factor directly influence the breeding behaviour, the basic productivity of the ecosystem, and recruitment of the fishes, modes of fishing and their distribution. Hydrology finds out the nature of the substrata and permits specific biological responses from flora and fauna, although there are significant feedbacks in the system. The dynamics of water balance as affected by incursion of river water; varying precipitation and nature of catchments are highly complex. The water accumulation of Doyang reservoir continues the whole year round and substantial amount of the water flows in the reservoir during monsoon inflow of water from different rivers including Doyang river. It has annual rainfall of 2000-2500 mm, being the maximum in July/August months (Table 1).

Table no 1: Salient morphometric and hydrographic features of Doyang Reservoir.

Location-District	Wokha
State	Nagaland
Type of the dam	Rock-fill with impervious core
In flowing rivers	Doyang, Chumeya, Tzuza, Chubi and Djupvu
Out flowing rivers	Doyang
Latitude	26°13'10" N
Longitude	94°17'90" E
River system	Brahmaputra
Length of the dam (m)	525
Base width of the dam(m)	445
Top width of the dam (m)	10
Height of the dam (m)	92
Full reservoir level (FRL) (m)	333
Minimum drawdown level (MDDL) (m)	306
Maximum water level (m)	336
Storage capacity at FRL (m cum)	565
Total catchment area (ha)	2258
Average annual rainfall (mm)	2000 to 2500

**Figure no 1: Location of Nagaland state in India.**

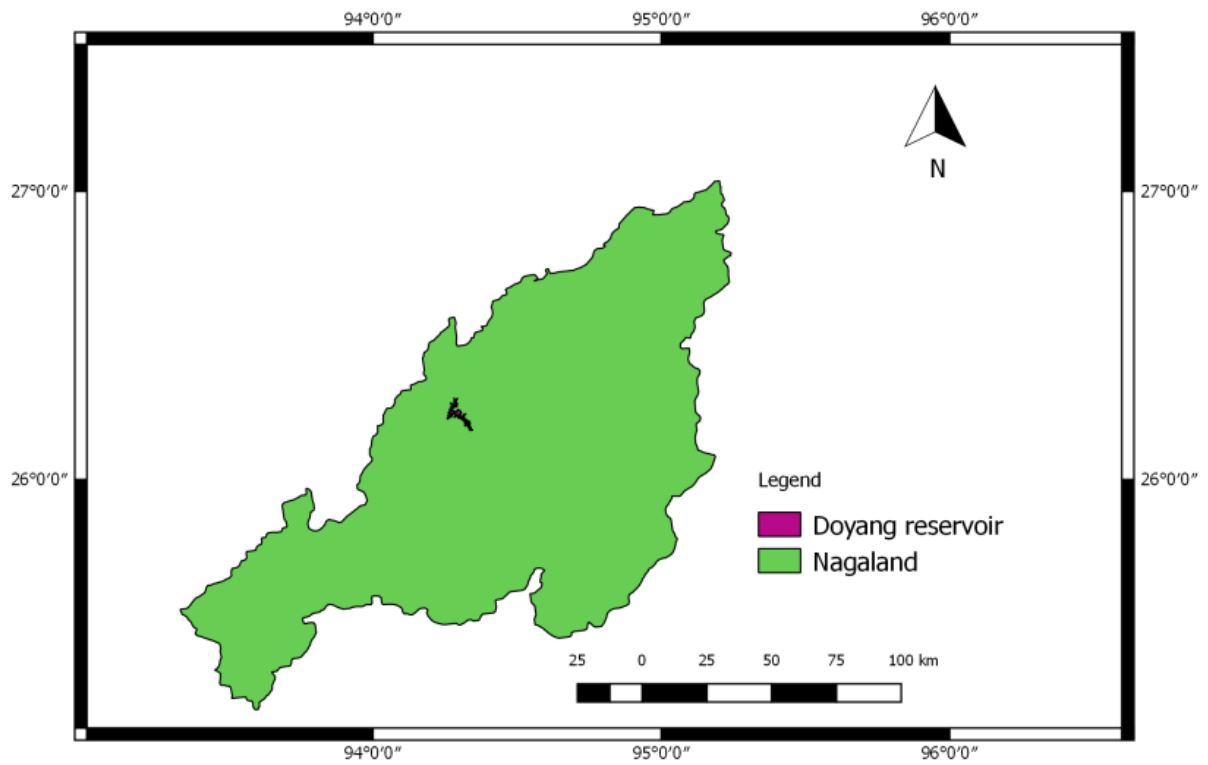


Figure no 2: Location of Doyang Reservoir in Nagaland, India.

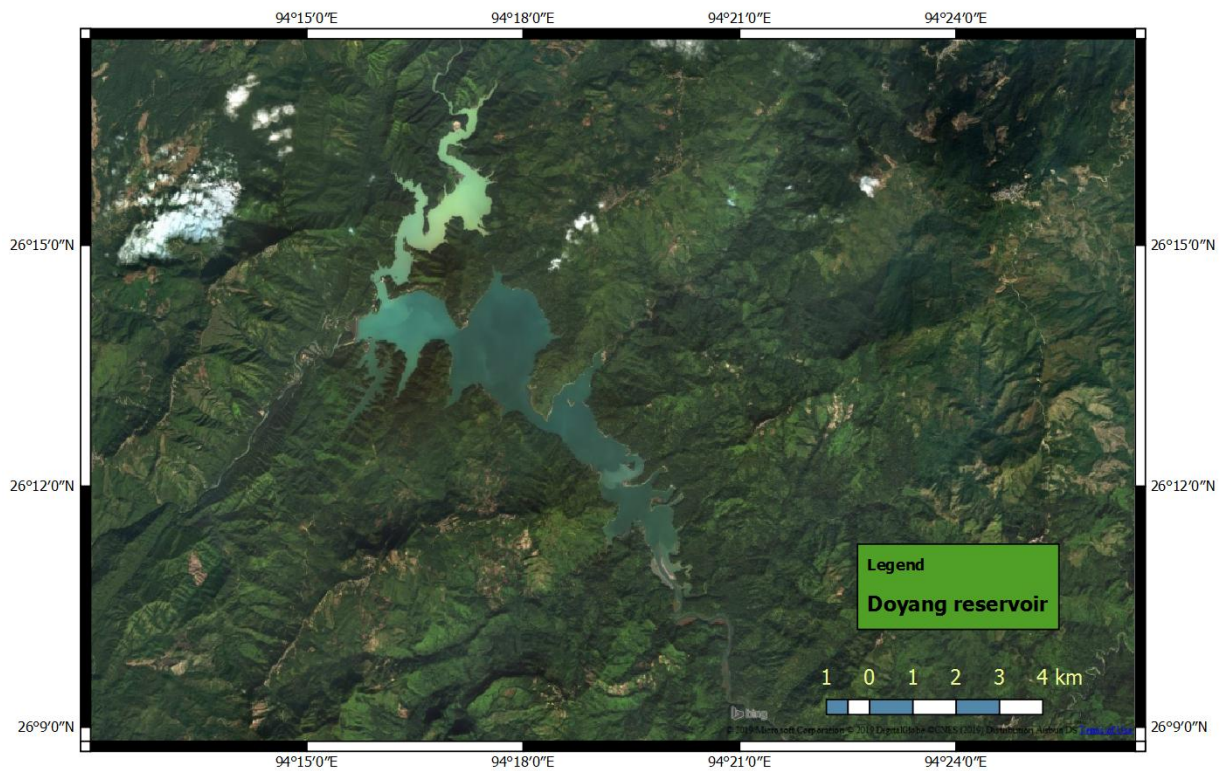


Figure no 3: Satellite image of Doyang Reservoir, Wokha, Nagaland.

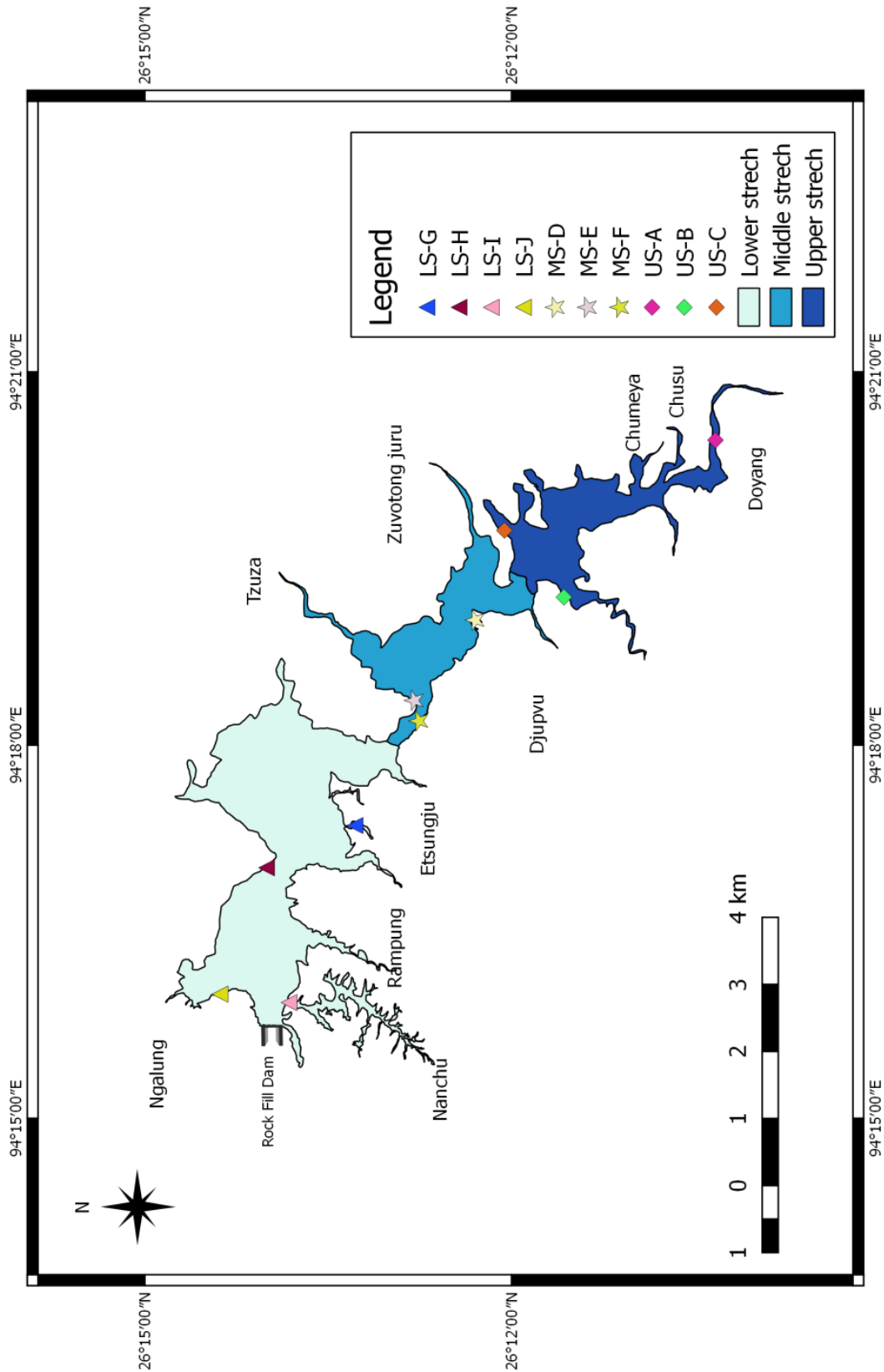


Figure no 4: Study area of Doyang Reservoir, Nagaland, India.