

OSHC “Barqi Tojik”

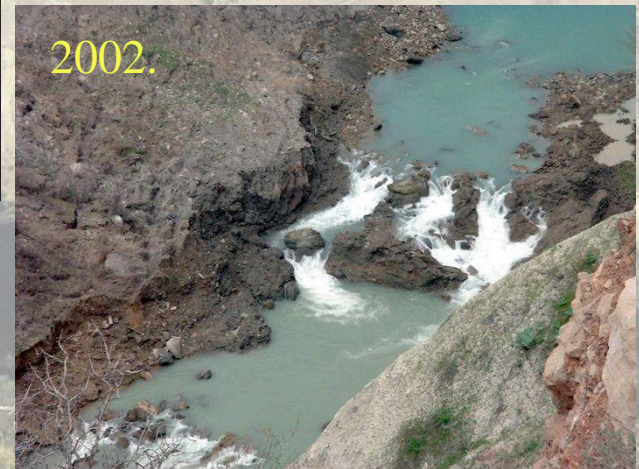
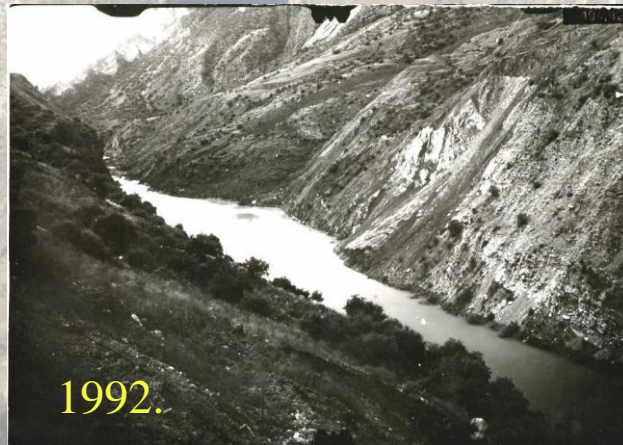
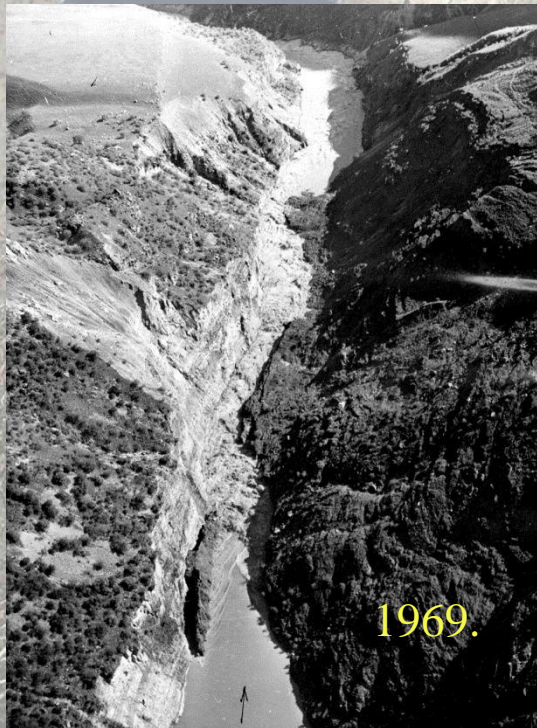
# **Baipaza Landline** ***History and Modern Issues***

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# History

- Baipaza landslide was brought to attention first time in 1969, when it blocked the Vaksh river. The Baipaza Hydro Power Station did not exist then.
- The second time the landslide occurred in 1992 which blocked the river and carried a threat of floods in Baipaza HPS.
- Last time Baipaza landslide blocked the Vaksh river in March of 2002.





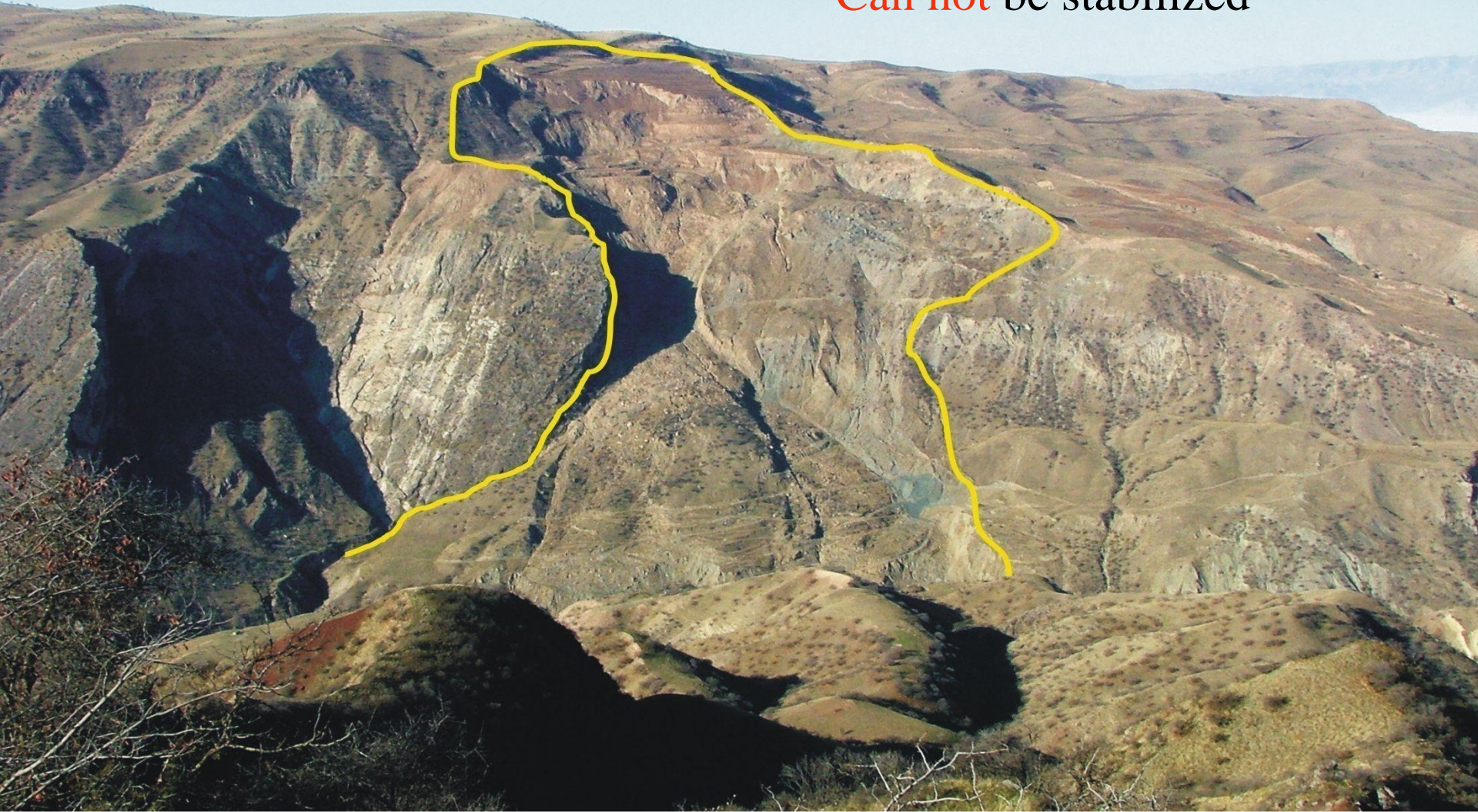
# Baipaza Landslide

Area— 640 000 m<sup>2</sup>

Volume— 23 mln.m<sup>3</sup>

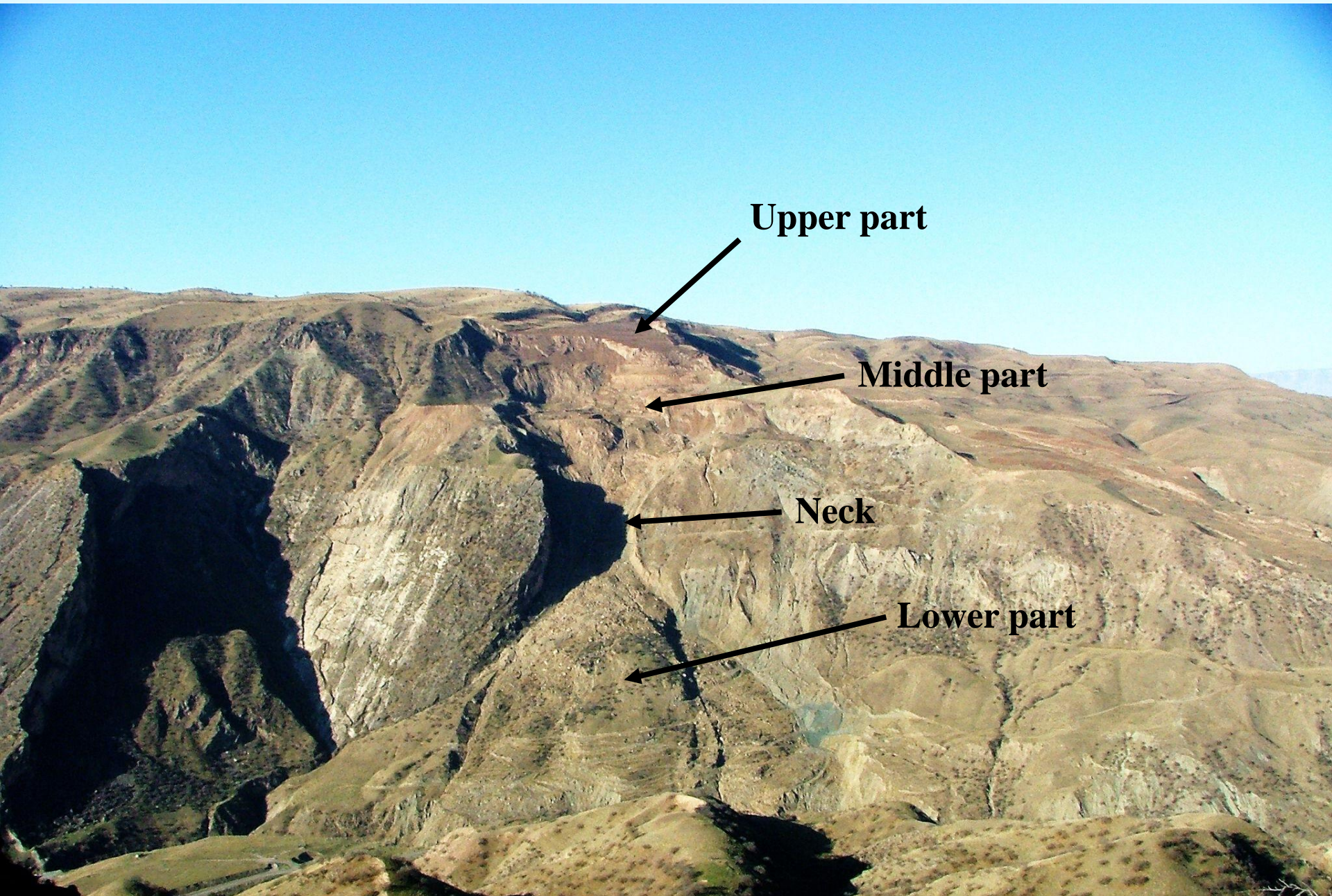
Status: **Active**

**Can not** be stabilized



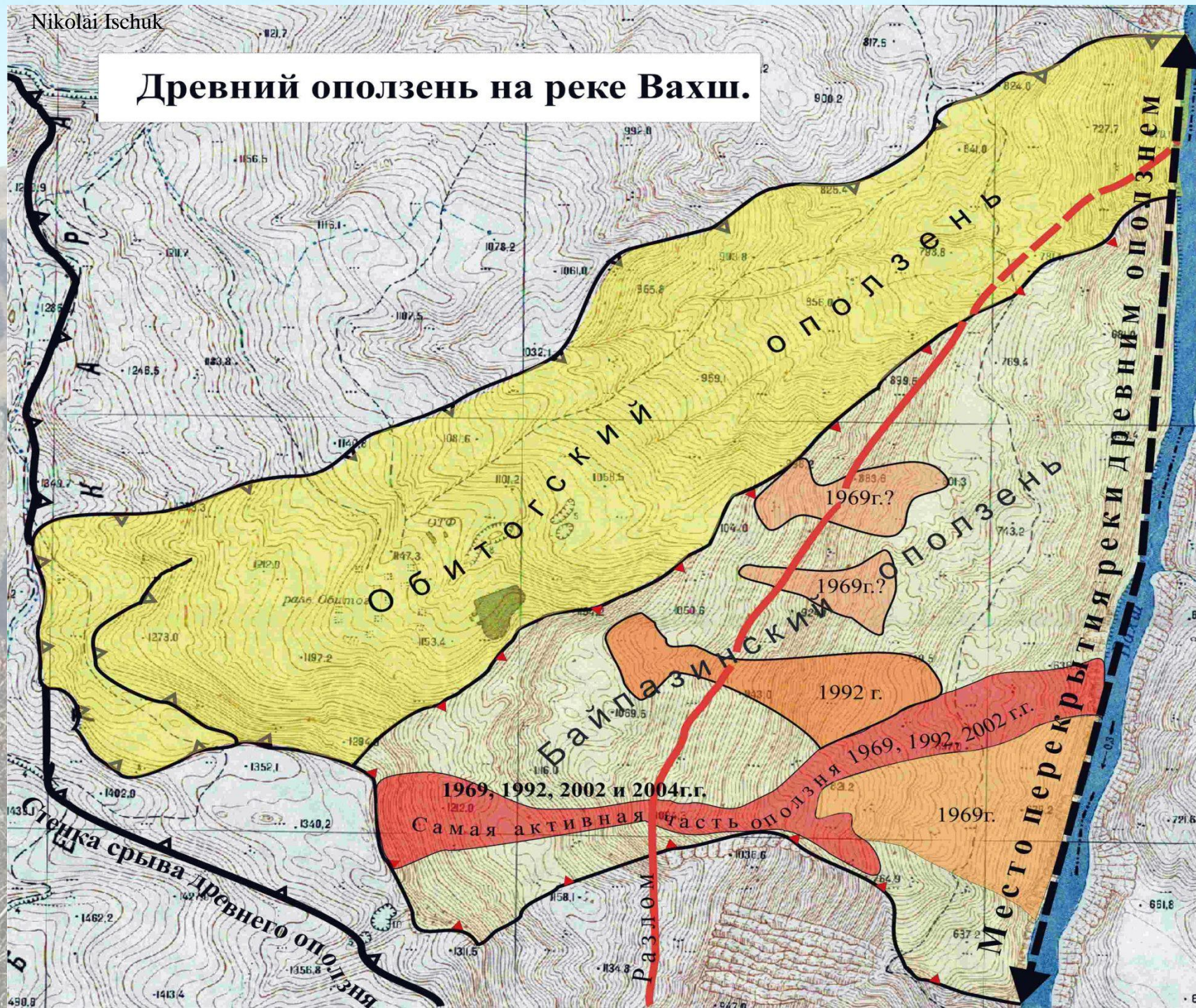


# Indicators of Baipaza Landslide





# Древний оползень на реке Вахш.





# What Could Have Been Done in 2002?

Save time in building tunnel in order to bypass water of in Vakhsh river during the landslide blockage..

Estimated Cost of Construction— around \$ 32 mln.





# Ways Out

- Unload the most dangerous part of the slope through the export of ground outside the landslide.



- To ensure removal of surface water during rainfall from construction sites to prevent soaking of the soil and reduce its stability.



# What Have Been Done

- 11 terrace built on top of the landslide;
- 9 terrace built in middle of the landslide;
- **632.1** thousand m<sup>3</sup> soil exported;
- 845.14 m<sup>3</sup> - total excavation of landslide (bulldozer and excavator);
- **1600m** ditches paved to divert surface water from construction sites;
- **21.5 km** of additional roads built;
- Duration of the construction **30 months**.



# Activation of Baipaza Landslide Since 2002

1. 26 April 2003;
2. May 2004;
3. 18 June 2004;
4. 21 December 2004;
5. late July – Early August 2005;
6. 4 April 2007;
7. March 2011.



# What Are the Hazards?

- Poses a problem for the Vakhsh cascade, generating 4.8 megawatts of electricity, which is 90% . electricity generated in the country;
- Temporarily stops water supply and irrigation of land in the area of 1730 km<sup>2</sup>;
- In the case of the dam breakage the destruction of settlements and the destruction of arable land in the Vakhsh Valley.



# What Are the Damages?

- Loss of 90% of electricity production for uncertain period;
- USD 20 mln. will be needed for reconstruction of Baipaza HPS;
- Termination of an aluminum plant with an annual capacity of 390 thousand tons of aluminum production;
- Loss of 66% of cotton land;
- Damage to more than 2 mln. people.



# Modern Status

- The most dangerous parts of the Baipaza landslide are the "neck", the northern and southern part of the riverbed.
- Erosion of the possible water blockage, as it was before the creation of the reservoir Sangtuda-1, will not occur, which will create additional difficulties in the elimination of overlapping.





# Conclusion

- Baipaza landslide is an active landslide and can not be forecasted;
- Stabilization of the landslide is not possible with modern technology;
- Baipaza landslide - is the sword of Damocles for hydropower system in Tajikistan;
- *It is imperative to immediately commence the constriction of emergency tunnel, which would allow to function HPS in case of Vakhsh river blockage.*