

THE DISASTROUS CONSEQUENCE OF THE REDUCTION INTO TWENTY METERS OF THE LEVEL OF THE WATER IN LAKE "NYOS" IN CAMEROON , WHICH ARE NOT TAKEN INTO ACCOUNT IN REPORT ABOUT ASSESSMENT OF THE DAM ON LAKE "NYOS" BY MISSION "Joint UNEP/OCHA Environment Unit", WHO HAD VISITED CAMEROON IN SEPTEMBER 2005.

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The **Reduction into 20 metres of the water level** in the lake "Nyos" **significantly magnifies probability of the mortal catastrophe** in contrast with probability of the catastrophe in the natural conditions.

The strengthening the existing dam (without reduction of the water level) on the lake "Nyos" **does not magnify probability of the catastrophe.**

Up request from the "Ministry of Territorial Administration and Decentralization of Cameroon" by the organization "Joint UNEP/OCHA Environment Unit" has made the mission to assess for September 2005 in Cameroon the stability of the natural dam on the lake "Nyos".

In report of the mission was noted that the dam by natural way will breach within nearest 5-10 years.

The Destruction by natural way of the dam on the lake "Nyos" will be the cause of the destructive flood in adjoining vicinity Cameroon and Nigeria.

In the report (2) mission "Joint UNEP/OCHA Environment Unit" were mentioned **two variants** of the prevention of the mentioned destructive flood:

1. **Reduction into 20 metres of the level** of the lake "Nyos", by way of the controlled rollout and unsetting of lake's water from lake's bottom, and after that **the destruction by blast of the upper (20 metres) part of dam.**

2. **The strengthening of the existing dam on lake "Nyos".**

The Variant 2., in the opinion of delegation "Joint UNEP/OCHA Environment Unit", **is an logical decision**, which, **however**, is **difficult to realize**, and which is **very costly** and **uneconomical**.

In the report (2), the mission "Joint UNEP/OCHA Environment Unit" **had offered to realize the variant 1.**(by the cost 15 millions USA dollars), which may be executed during two years.

Accordingly of the report of the mission of the "Joint UNEP/OCHA Environment Unit" by the **realization of the variant 1. would avoided of threat of the breakout of the dam**, and by the realization of the variant 1. **would avoided of threat** of the destructive flood.

Accordingly of the report of the mission of the "Joint UNEP/OCHA Environment Unit", **the reduction of the depth** of the lake "Nyos" into 20 metres **do of the reducing of the load on the dam on 75%**.

Regrettably, in **the report** of the mission of the "Joint UNEP/OCHA Environment Unit", **is not taken into account**, that reduction of the depth of the lake "Nyos" into 20 metres, **magnifies the probability, and destructive power of the catastrophes**, similar to catastrophe, who is happened on the lake "Nyos" August 21 1986.

By the obvious effect of **the realization of the variant 1**. must be the **significant decrease of the hydrostatic pressures** on lake's bottom on **9,6%**.

In work (1) is described intercoupling of the hydrostatical pressures on lake's bottom (the border of the section the sediment stratums - lake's water) with the other parameters, determining possibility of the destruction of the solid porous phase of the sediment stratums, and, after this , of the realisation of the instantaneous gaseous ejections.

(The instantaneous gaseous ejections has occurred on lake "Nyos" August 21 1986.)

By the Authors of this work **is realized computer modeling**, with using the program "**SONATA**", of **the possible events** on the lake "Nyos" at period with 1929 till 1989, presuming the level of the surface of lake's water into twenty metres below the really existing at our time.

For computer estimation of the possible consequences of the reduction into twenty metres of the depth of the lake "Nyos", in the "**Real scenario**" for lake "Nyos", which was described in the article (1), **the values of two parameters was changed**:

The value 1090,72 m. (" Height of the surface of the lake, comparatively sea level, m.") was replaced by the value 1070,72 m.;

The value 1,580 km². (" Sq. area of the surface of the lake, km²") was replaced by the value 1,350 km².

According to calculation, if, at period of time with 1929 till 1988, the depth of the lake "Nyos" was smaller (than really) into twenty metres, **could take place the following events**:

1. **The Velocity of the water solution** of the carbon dioxide and the methane in the sediment stratums under lake's bottom , with reduction of the depth of the lake into twenty metres, **will increases in two times** .
2. **The quantity of the carbon dioxide**, which are entering during one measure of time in lake's water , at reduction of his depth into twenty metres, **will increases in two times**.

3. At reduction of the depth of the lake "Nyos" into twenty metres, the values, of the stress (the compressions) (1) and the threshold value of the mole-fraction of the carbon dioxide in the water solution under lake's bottom (1), will be decreased, and, consequently, **probability of the beginning of the instantaneous and of the slow catastrophic gaseous ejections will be significantly increased.**

4. Would the depth of the lake "Nyos" be twenty metres smaller, than really, the instantaneous **catastrophic gaseous ejections** to the lake's water **would occur significantly earlier**, not on day 239 of 1986 (1), but on day 24 of 1984 (24 January 1984).

5. Would the depth of the lake "Nyos" be twenty metres smaller than really, **the height of the column of the gas** (1), which ejects on day 24 of 1984 from the surface (0,435 km²) of the bottom of the maar of the lake "Nyos", **will be significantly increased**, in recalculation on normal conditions (1 atm., 278,10K), **with 30,29 m. (1) till 60 m.**

6. Would the depth of the lake "Nyos" be twenty metres smaller than really, **the average height** (in recalculation into the all area(square) of the water surface (1,350 km²) of the lake "Nyos"), **of the column of the gas** (1), which ejects on day 24 of 1984 from the surface (0,435 km²) of the bottom of the maar of the lake "Nyos", **will be significantly increased** (in recalculation on normal conditions (1 atm., 278,10K)) **with 8,34 m. (1) till 19,30 m.**

7. Would the depth of the lake "Nyos" be twenty metres smaller than really, **the layer of the gas**, from of the mentioned instantaneous catastrophic gaseous ejections on day 24 of 1984, **would have filled practically all volume of the chalice** (above of lake's surface), which are forming at reduction of the depth of the lake "Nyos" into twenty metres.

8. In report of the mission, is provided **the spillway**, who will be formed **on place of the destroyed part of the dam** of the lake "Nyos". This **spillway will be single vent through which the gas could flow out of mentioned chalice** to the vicinities of the lake "Nyos".
Is it normally ?

9. Taking into consideration the mentioned quantities of the gas possible expect, that, **the outflow of the gas** from the lake "Nyos" **through the mentioned spillway, can cause mass destructions and death of the people on significantly greater territory**, than during of the limnological catastrophe on the lake "Nyos" August 21 1986.
Moreover, **catastrophic gaseous ejections can be repeated.**

Said means, that, **at reduction of the height of the dam into twenty metres (the variant 1.):**

are excluded possibility of the breakout of the dam and floods, appearing after her breakout;

greatly, in contrast with the naturals, may magnify of the probability and the destructive power of the catastrophic gaseous ejections;

is **greatly broken the natural regimen of the feeding of the lake** by the water solution of the carbon dioxide and the methane.

At realization of the variant 2.:

are excluded possibility of the breakout of the dam and floods, appearing after her breakout;

does not magnify of the probability and the destructive power of the naturals catastrophic gaseous ejections;

is saved natural regimen of the feeding of the lake by water solution of the carbon dioxide and the methane.

The Conclusion.

The strengthening of the existing dam on the lake "Nyos" (the variant 2.) without reduction of the water level in the lake ,which was rejected by mission of the "Joint UNEP/OCHA Environment Unit", it is an logical decision, which are inflicting significantly smaller (in contrast with variant 1. , with the reduction of the water level in the lake) the damage of the surrounding ambience, it is an logical decision, which excludes the possibility of the breakout of the dam and the floods, appearing after her breakout, **decision which does not magnify of the probability and the destructive power of the naturals catastrophic gaseous ejections.**

The List of the literature.

1. **N. A. Solodovnik · A. B. Solodovnik,** " MECHANICS of be *SWITCHING ON* of the *TRIGGER MECHANISM of LIMNOLOGICAL CATASTROPHES*, happened in CAMEROON on lake "MONOUN" in 1984 and on lake "NYOS" in 1986., by the *INFLUENCE* of the ATMOSPHERIC PRECIPITATION in 1983."
<http://www.nyos.lv>
2. "Lake Nyos Dam Assessment", "Joint UNEP/OCHA Environment Unit", Cameroon, September 2005.
<http://ochaonline.un.org/ochaunep>