

Devil's Gate Reservoir Sediment Removal and Management Project"

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To: reservoircleanouts@dpw.lacounty.gov

Sun, Jan 5, 2014 at 3:59 PM

Dear Ladies and Gentlemen,

by chance and through people who addressed us a couple weeks ago, we did get aware of the "Devil's Gate Reservoir Sediment Removal and Management Project" and the proposed solution.

We want comment and to give input to the draft environmental impact report for the Devil's Gate Sediment Removal and Management Program (and if applicable to further rehabilitation projects), which are sponsored by LACFCD, and are now out for public review with comments closing on January 6, 2014 or at a future date.

We very much appreciated the valuable study and especially the video describing the situation about sediment cycle and the situation with flood protection and reservoirs.

It is following the following video: <http://www.youtube.com/watch?v=H8rt8Zrb8ps>

Everything in that movie is right up to the minute: 3.35, when it is proposed to take sediments out of the river and the ecosystem.

The use and storage of water is eventually resulting in sedimentation and siltation of the storage capacity of the reservoir.

Comment:

Not only in the case of storage for drinking water purposes, the operators often think that every drop of water should be used for just that purpose. It is true that water should not be wasted. It should be used efficiently and caringly. But due to the use of water, there is an impact to the ecosystem that needs to be compensated. Besides storing water, some water should be giving back to the river for guaranteeing minimum flow in the riverbed. Reservoirs that are intended to serve the flood protection and serve, as retention volumes could be equipped with small turbines that can run the electric driven machines to perform the continuous sediment management.

The sediment management should address two main targets:

1st at least keeping the current stage of the volume of the storage capacity

2nd rehabilitating the storage capacity by further measures, including an increase of transferred sediment volume that still meets the framework conditions of a system sensitive approach.

To reach both targets is very challenging. For many cases, we are ready to provide a study (sometimes in parallel to the ongoing studies) to determine the feasibility of continuous sediment transfer for the silted dam.

It should therefore be the question:

“What is the most effective and most efficient way to compensate the impact of using and storing water?” and which method is most efficient for the rehabilitation of the lost storage capacity? and which method has the least (additional) impact when applying the solution?

Current attempts to solve the problem of sedimentation and siltation

Within the current environmental impact report it is proposed to dig or dredge reservoir sediment and dispose it at a far distant site. This is extremely expensive and has a strong impact to the environment and to the community. It is the most expensive method to try to solve the problem of sedimentation. In addition stored or extracted sediment which is missing downstream of reservoirs leads to erosion damages, substrate deficits and ground water problems. Even coast erosion on the beaches is effected indirectly.

When removing the sediments or even reducing the sediment volume in reservoirs for the storage of water for drinking water or irrigation, the facilities plant operators are faced with exorbitant costs; we talk several million US Dollars range even for small reservoirs. In the case of LA County they want to run 450 trucks constantly to a dump at a distance of 20 to 30 miles away for 5 years or more to remove about 2 to 4 million m³. Can you imagine the impact of this measure to public and environment?

The ConSedTrans-Method of DB Sediments

We are ready to propose the ConSedTrans-Method, as an alternative and innovative technical approach of DB Sediments that makes reservoirs penetrable for sediment avoiding above-mentioned secondary effects. Incoming as well as already settled sediment is continuously transferred through the reservoir and fed over long time spans in morphologically and ecologically compatible concentrations and with a necessary quantity of rest-water (minimum flow requirements) downstream by applying newly developed equipment. In the eyes of the operator of the reservoir this rest-water-quantity might be lost, but it enables the sustainable and continuous use of the reservoir.

Reservoir management and turbidity is not affected when properly applied and the approach is performed during daily reservoir operation. It is applicable to almost any range of plants, small to large

drinking water and irrigation water reservoirs - or reservoirs for hydro power generation.

This approach does not only restore the overall sedimentation process to a near to natural state, but also fulfills the requirements of the Water Framework Directive 2000/60 of the European Community as well as the US Sediment Acts. Moreover, as the equipment can be fully automated, it is also economically very competitive, even without considering the avoided costs of the secondary effects. Furthermore continuous sediment transfer can have positive effects with respect to the characteristics of wave dynamics that is also affecting river flows (and floods).

Our invention has received the PLATTS-Award of Excellence as “Leading Global Sustainable Technology-Innovation of the Year 2011” by Platts and Fortune Magazine, has been recently nominated for the Platts Global Energy Award for the third time in a row (2011, 2012, and 2013), was nominated for the Zayed Future Energy Prize, and furthermore has most recently received the Initiative Prize for renewable energies and environment in the state of North-Rhine Westfalia in Germany.

When applying our approach, it is usually one of the first steps that we offer a study, that - scientifically sound - will address the individual framework conditions and finalize on quantifying the overall cost of applying the patented approach. Besides the Global Water System Project - as a network of global researchers in the field of water, we work together with a number of well know German (Excellence) universities, including the RWTH Aachen - technical university of Aachen. Furthermore, just a couple weeks ago, we established closer contacts with Purdue University, University of Illinois and University of Wisconsin (Milwaukee and Madison). Looking at the individual framework conditions, I am very positive to see that there are times when there is enough excess water that could be used for continuous sediment management i.e. without harming the necessary supply of drinking water, irrigation water or water for hydro power generation. Furthermore, the retention volume is kept at the necessary level. The efficient and effective use of this water could extend the lifetime of a reservoir from “just a couple years” to “many years” and besides creating a sustainable use of water, it gives benefits to the overall ecosystem.

Further to the information there is a link to the English brochure on our approach:

http://www.db-sediments.com/tl_files/db_layout/Broschueren/DBS_English.pdf

The following link has some information about the Mississippi and how held back sediments in the Mississippi River is effecting the existence of the Louisiana delta (what has been build up in thousands of years, is about to disappear within about 100 years after building dams and/or locks on the Mississippi):

<http://www.nola.com/speced/lastchance/multimedia/flashlandloss1.swf>

In November 2013, we had a meeting with representatives of the American Association of State Floodplain Managers (<http://www.floods.org>) in Madison, as well as at MWH Global Offices in Chicago. Our method was very well received! We are currently setting up a project with the Global Water System Project (www.gwsp.org, it will be presented at the Water-Energy-Food Nexus conference in

May 2014 <http://24488.seu.cleverreach.com/m/6997901/>) quantifying the overall benefits of the continuous sediment management for the overall ecosystems (sustainable storage, prevention of bed load erosion, prevention of groundwater levels from falling, enabling irrigation, sustainable flood management, prevention of coast erosion and prevention of a decrease of ground water quality in the delta areas of the rivers). There are a number of other large and small-scale projects that we are currently preparing. For March, we are preparing to have a third round of presentations for experts of the World Bank and international organizations in Washington D.C.

Here is the link to the scientific paper, that was presented at the ACWUA Water Conference in 2012 in Oman:

http://www.db-sediments.com/tl_files/db_layout/images/120524%20ACWUA%205th%20BP%20conference%20-%20Paper%20Bartelt,%20Bundemann,%20Sevis.pdf

and a presentation, held with a Water Technology Seminar of the German American Chambers of Commerce in October and November 2013:

http://www.gaccmidwest.org/fileadmin/ahk_chicago/2013_EVENTS/2013_Water_Roundtable_WI/02_Dietrich_Bartelt.pdf

Resume:

LA County is proposing the “cleaning the reservoirs” in order to rehabilitate lost retention volume for flood protection.

We would like to support LA County with setting up a joint and more system sensitive, more cost effective and sustainable approach with continuous sediment management.

Due to the Christmas break, we were not able to set up a project team with participating organizations or companies, but we would be ready to contribute to the success of your project. We had a personal conversation with the Director of NREL - National Renewable Energy Laboratory on Dec 12th, and addressed him for cooperation on the issue of continuous sediment management just before Christmas. Besides, we are waiting for response of further organizations and companies.

Please let us know what you think. Would you be interested to know more? At the cost of travel expenses, we are ready to provide a presentation or a lecture, if asked for, even on short notice.

We want to wish you and your colleagues a good and successful New Year 2014.

Best regards,

Dietrich Bartelt

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Sitz der Gesellschaft: Duisburg

Eingetragen beim Amtsgericht Duisburg

Handelsregister-Nr. HRB 21143

USt-IdNr. DE815063955



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