Wake up Sri Lanka! Wake up NOW!! : Sethusamudaram Risks West Coast to Future Tsunamis

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(All the reference sources used in this article can be downloaded from the above website.)

The Government of India (GoI) has cleared Sethusamudaram Project (SSCP) at a worst possible time. The whole of Palk Bay is reeling today, under an excessive stress caused by the December 26th tsunami. Most of its biotic and physical resources remain challenged partially or fully by the tsunami. However, the Ministry of Shipping has decided to start the dredging work for the canal in three weeks time from now.

The work would begin in Palk Strait - a place, least studied by the dredgers or by the organization that had prepared the SSCP technical feasibility report. The estimated quantity to be dredged would be 12 to 13 million cubic meters initially. This is 22 to 26% of the dredging work estimated for the Palk Strait area or 13.6 to 16 % of the dredging work estimated for the whole project. That means that the first one seventh of the work would be initiated within the next 20 days.

The Drama

The Department of Ocean Development's (DOD) report on Tsunami damage, published in late March, had documented that the sedimentation rate at the coral reefs around Pamban Island had increased two folds during the tsunami. A team of scientists from Central Industrial Research Institute studying placer deposits in the area had estimated something like 40 million tonnes of Titanium alone to have been deposited in the whole 500-kilo meters stretch of the coastline that was hit by the tsunami. Zoological Survey of India's report talks about the consequences of excessive dumping of silt by the tsunami in Palk Bay on the Bay ecosystem. Independent surveys conducted at Kodiakkarai in January had revealed that the sea is now half its depth than it was before tsunami.

GoI had not thought it important to consider the project's viability in the light of the above conclusions. Also, it did not occur to GOI that these study conclusions indicated that the total amount of material that has to be dredged now would actually be many times higher than the original estimate put forward by the project proponents.

Palk Bay and its neighboring areas had witnessed 23 storms and cyclones in the period between 1891-1995 A.D. That means cyclones have crossed this area once in 4 to 5 years. Studies by Dr.Sanil Kumar of National Institute of Oceanography, Goa have indicated that during these cyclones, sediments get dumped in Palk Bay. In addition to this, the area has witnessed 3 tsunamis (1881, 1883, 1941) prior to the current one. All these facts indicate that the amount of dredging that would be necessary would actually

be many times higher than the amount estimated by National Environmental Engineering Research Institute (NEERI), Nagpur.

The real irony came to the forefront in a news item published by The New Indian Express in its March 28,2005 edition. It said:
"In an official note issued early this month, the PMO (Prime Minister's Office) is said to have questioned risks from aspects such as sedimentation due to cyclonic disturbances and threats due to future natural calamities like the tsunami. These issues had not been covered in the environmental impact assessment by Nagpur-based agency NEERI. Its Director S Devotta told this website's newspaper that his agency had not received the PMO note. However**, he agreed that NEERI had not covered the sedimentation issue** because ''we had asked the Tuticorin Port Trust to address this aspect with the help of another agency.**'' Devotta also stressed that there was no thought on the possibility of tsunamis in this region when the assessment report had been submitted in August 2004**. ''That is why NEERI did not address a tsunami scenario in its study. After the tsunami, any ocean development project - not just the Sethusamudram project - would have to look into this new aspect,'' he conceded."

So, here is a project, where the agency that calculated the amount of sediment to be dredged had openly accepted that it had not studied the issue of sedimentation. It had admitted that it had not considered the issue of tsunami. What its director failed to tell the newspaper was that his agency had also not considered the issue of cyclones that frequent the area once in 4-5 years.
However, the Indian Prime Minister's Office had raised all these questions in its official press note dated March 8, 2005. With respect to this, The New Indian Express report dated 20 May, 2005 reported:

> *"However, post-tsunami, the plan landed in fresh difficulties, with the Prime Minister's office reportedly questioning the environmental impact assessment (EIA) study by National Environmental Engineering Research Institute (NEERI). The PMO wanted fresh evaluation, as information about the effects of tsunamis and cyclones on the project had not been factored in and noted there were huge gaps in the current knowledge about sedimentation.* ***Subsequently, a team of experts studied the project and made it clear that Gulf of Mannar would not face any threat from the tsunami in the future and the apprehensions expressed by the PMO were cleared****."*

That makes the drama more interesting! The above-mentioned study by experts that had the power to clear PMO's earlier doubts on the project's feasibility was completed in a record time of 13 days (April 1 to 13th). What NEERI was unable to achieve in its two years of study (13.05.2002 to 9.06.2004), this anonymous group of experts seem to have accomplished in a matter of just 2 weeks!!!

The meaning of the Drama

Tsunami simulation models by Prof.Steven N.Ward of Institute of Geophysics and Planetary Physics, University of California, Santa Cruz, USA and Prof. Aditya Riyadi of Pusat Penelitian Kelautan Institut Teknologi, Bandung, Indonesia give a very clear picture about the pattern of tsunami wave interaction with Palk Bay. These models have been confirmed correct by the data on tsunami waves received from JASON 1 satellite

and also by the various post tsunami field surveys. These simulation models indicated that the northeastern, central, eastern portions of Palk Bay had received waves of higher energy and thus these areas had remained more turbulent during tsunami. This means, the extent of sedimentation and thus the extent of damage to the marine ecosystem in this part of the Bay should have been much higher than the other areas of the Bay. Incidentally, all these areas fall within Sri Lankan boundary.

The above said simulation models have also indicated that the waves traveling into Palk Bay both from north and south have a tendency to travel toward the eastern and central half of the Bay during tsunami. Usha Natesan of Anna University, Chennai has made a similar observation in 2002 from her study on the role of satellites in monitoring sediment dynamics. As stated earlier, all these areas fall with in Sri Lanka's boundary.

NEERI's bogus estimate on the amount of dredged material is not the only issue that beckons us. The Technical Feasibility Report (TFR) it had prepared along with the Environmental Impact Assessment (EIA) raises a still more serious issue. It states: "

> *The costs may face upward revision as it has been observed that in more than 50% of the dredging contract there has been very large cost overruns mainly due to poor soil investigation**. Investigations carried out in this study are based on sub-bottom profile except for three borings in Adam's Bridge and there is apprehension that hard strata will be encountered in Palk Bay/Palk Strait area. If bottom strata turn out to be rock**, the dredging costs will change drastically, as **blasting might be required**."*

(Executive Summary, SSCP TFR, NEERI, page XVIII).

Even for its bogus estimate of the amount of dredged material, NEERI had not identified specific dumpsites. With respect to this, consider the following assessment: "The total quantity of spoils that would come from capital dredging is supposed to be 81.5 to 88.5 X 10^6 m^3. The quantum of dredged spoil that would come from maintenance dredging is supposed to be 0.1 X 10^6 m^3 / year. Specific dumpsite has been identified only for 8.5 to 9.5 % of the total dredged spoil. Idea about the nature of the dredged spoil is available presently, only for about 38.5 to 40.5 % of the total dredged spoil. No idea exists at the present time on the nature of the dredged spoil that would be generated for 59.5 to 61.5 % of the total dredged material. We do not know the exact dumpsites for about 90.5 to 91.5 % of the dredged material."

So where would they dump the material they would be dredging 20 days from now? With no consistent answer to this question, the project is getting ready for its launch.

Where would the dredged materials travel during normal times and during the times of cyclones and tsunami? As indicated by the studies of Dr.Usha Natesan, Steven N.Ward and Aditya Riyadi, they would be getting dumped in the Sri Lankan portion of Palk Bay. Blasting, if resorted to in Palk Strait, would sound the final death knell for the Palk Bay ecosystem.

The Risks

The deep-water route of the SSCP has two acute bends in its course. These bends would obstruct the waves gushing through the canal, and thus there would be excessive sedimentation in the upper and lower courses of the canal. The impact of the high-energy waves on the bends would destroy these bends, thus paving way for the waves to enter the central portion of Palk Bay. Sediments carried by these waves would make the central portion of the Bay much shallower. Presently (that is before tsunami; post tsunami, study of its depth has not been calculated, yet) this 78 km stretch is said to have an adequate depth of 12 meters. But, with a canal that has the potential to transport high-energy waves from north and south during cyclones and tsunamis in place, this area would also become a candidate for dredging. This would also increase the amount of turbidity in Palk Bay considerably. With all this, the amount of material that has to be dredged would increase dramatically.

Thus continued dredging in the total stretch of 152.2 km would become the order of the day. Increased, nonstop, unplanned dredging would destroy a sea having one of the highest levels of primary production in the world.

Conclusion:

SSCP would probably be the only offshore project in the world in which the project planners have committed publicly that they have not considered the high risk factors and yet would go forward with the execution of the project. Even the worst tsunami that mankind had ever witnessed was unable to break the pertinent vow of the project proponents to remain ignorant of every environmental parameter capable of destroying the project's viability. Instead of concentrating on an analysis of the factors that possess the potential to make the project non feasible, the project proponents were busy constructing filmy discourses on the potential utility of the project during the pre clearance days.

It's time Sri Lanka wakes up to this canal, NOW!!!