

HOW TO BRING THE DYING DAL TO LIFE: Part 2

My observations on the Dal Lake, written last year, were based on my read of a thirty year (1987) old report on the Dal Lake done by a New Zealand Consultant, Enex Consortium. I thought the Enex Report was good work and the report recommendations seemed most logical. Back then the Kashmir government appointed a committee to review the Enex recommendations. Reading the committee response and observing first hand the awful condition of the Dal and the other deteriorating waterways of Kashmir I had evoked Nund Rish's prophesy: *Vethe Hokan Tee Hander Grazen, Teli Mali Assi Wonder Raj* (Rivers will dry, Drains will roar: Then My Dear will Monkeys Rule). Some friends at my request commented on my writings. My earlier discussion was limited to the recommendations by Enex. Since then, I learned, other major studies have been done in 1985, 1986, and 1997. In 2001, Government of India, Ministry of Environment and Forest approved a Detailed Project Report (DPR). All this work expanded the scope of the Dal conservation program. Having had the benefit of new insights I am now reminded of the saying of another Kashmir sage, Lal Deed: *Kahan Rawmunch Goove* (Eleven lost one cow).

Kashmiris from all walks of life are deeply concerned about the deterioration of the Dal. The Dal inhabitants and the Lakes Development Authority are seen as culprits. These debates focus on the symptoms; the underlying causes that are cause of the pollution remain unattended. At the end of the day, while the Dal's quality has worsened considerably, the base line conclusions of the causes of the pollution outlined in the Enex report remain relevant. The main point being that the house boats in the Dal (6250 households) are not the main source of Dal's pollution. The water run off of the area surrounding the Dal contributes more than 70% of the pollution. Here is the reason as per the Enex report: the reduction of plant covers on the surrounding hills caused soil erosion. The increase in agricultural activity in the catchments area and within the Dal Lake itself, from the floating gardens, added more polluting nutrients. Get this: There are less than 10,000 households living within the Dal Lake; population of the area surrounding the lake is about 300,000. The sewage from the surrounding area's population continues to flow untreated to the Dal Lake. As does the waste from automobile workshops, hotels and dairy forms of the surrounding area. And the proverbial elephant in the room is the problem of the fertilizer run-off from floating garden area. That problem has remained unattended.

The Enex recommendation was to separate the fresh water area of the Dal from the floating garden area by a earthen bund from Dal Gate to Nehru Park then to Kotar Khana continuing to the North West towards the Engineering College and Hazratbal. The government committee rejected this recommendation. It wanted to restore the "historic" water surface of Dal Lake, about 400 hectares of land area. So far, in thirty years, the total land area reclaimed is 2 hectares.

The Enex Report Recommendation

In addition to the recommendation to separate the floating garden area from the lake's open water areas by an earth bund with locks that would allow access but prevent nutrient rich water from the floating gardens into the lake's open water, the Enex report recommended to:

1. Restore the ground cover in the Dal Lakes catchments area by reforestation and control grazing.
2. Construct a water basin to arrest the bulk of the sediment and insoluble nutrients entering the lake from the north side, from Tubal Nula
3. Extend the existing Boulevard road to the western side of the lake to define the shoreline of the lake and dredge out the northern end of the lake.
4. Build trunk sewage and electric and water pipes for connections to the house boats on the proposed bund separating the floating gardens from fresh water area.
5. Rearrange the mooring area of the houseboats along the new bund to improve visual appeal and improve water circulation.

Context for Dal Restoration

The Dal Lake water body area (18.5 square kilometers) is less than 6% of the catchment area of the lake (337.17 square kilometers). Within the catchment area about 60% of the area that drains into the lake has no ground cover. Only less than 1/3 of the catchment area has vegetation on it (that can arrest water runoff).

A Lake Authority social and economic characteristics survey of the population living within the lake area identified 105 Mohallas (neighborhoods) that were divided into 22 geographic areas based on the ground topography. Within the lake area there are about 4,200 houses and another 3,500 huts. The build out floor area is 308,216 sq. m., area which is about 76 acres. There are 775 houseboats and 328 doonga boats within the lake. The houseboats and doongas occupy about 35 acres (1,39,716 sq.m) of water area.

The population within the 22 areas is made of 6,250 households, about 60% of these are of 3-6 members. Total population within the lake area is estimated at 38,797. Majority (71.7%) of the lake population is illiterate, only 4.43 % have completed high school. There are 15,598

employed persons, 7,728 work outside the lake area and 7,870 work on jobs within the lake area; 60% of the household average income is between Rs 1,000 to Rs 3,000 per month

The Dal Lake Development Authority progress to date includes:

Soil conservation of 99 sq km area in Dara-Deniham and Zeethyar Catchment. Part of this program includes development of plant nurseries.

Under the hydraulic works program Telbal Nallah Settlement Basin is done. Dal lock gates are installed to improve water circulation. Navigation improvements like locks are installed for Brari Numbal and Nallah Amir Khan.

Three sewage treatment plants, (treats about 40% of sewage flows to lake from peripherals) are operating; in addition work is being done to lay peripheral sewers from Nehru Park to Dal gate.

The relocation plan for house boats in Garibaldi area is finalized. Under the plan house boats will be required to have floating septic tanks.

Lake restoration measures done to date include:

Dredging of 181 acre area (1450 Kanals). This has created a 0.8 sq km of clear water expanse. Manual and mechanical dewatering of the lake has removed about 12,000 cubic meters of weeds. In and around the lake 479 major illegal structures have been demolished. About 1058 families have been moved from the Dal Lake area to outside the Dal area. Land area of 1197 kanals (149 acres) of floating gardens has been converted to water area.

As part of the relocation plan 7500 kanals (9687 acres) of government land at Rakh Arth in Bemina is being developed by the Srinagar Development Authority as a satellite township for the remaining Dal lake population. I estimate about 5,000 households are (6250-1058 = 5192) yet to be relocated.

The Dal project finance responsibility is divided between the Indian Central government and the State government. Based on the 2001 Detailed Project Report protocol the public works projects, i.e. lake conservation measures, are funded by the government of India, estimated cost Rs 298.70 lacs. The rehabilitation part of the project is the State government's responsibility. The estimated price tag for development of Rakh Arth is Rs 375 crore. The State government has no money allocation for this work.

Kahan Ravmuchi Gaav

The residents of Dal and in particular the houseboats remain a target of the public's wrath. The Dal Lake authority's focus seems to be on construction schemes. The benefits of these at best are

marginal for lack of timely coordinated effort. As an example, out of the five sewage treatment plants proposed to deal with the peripheral sewage, only three are completed. Two are held up in bureaucratic inertia.

Given the logistical challenge and budget constrains the relocation of Dal dwellers is an improbable proposition. Equally impossible seems the task of "restoring" the floating gardens; they are anchored to the lack bed and thus float no more.

So How to Bring the Dying Dal to Life?

First, the Dal restoration program's focus needs to include, in addition to construction engineering schemes, an open public participation in the enforcement efforts. As example, the first priority for sewage run-off should not be building sewage disposal plants but programs to control run-off and sewage discharge at the source. Second, the program should focus attention to deal with pollution generated not only by lake dwellers but the population around the lake. This will require a concerted effort to control land utilization and drainage patterns of the lake catchment area and the floating garden area within the lake.

In terms of specific projects, the following would show near term results:

Resurrect the Enex proposal to separate the clear water portion of the lake from the floating garden area.

Shift program emphasis from relocation of population in the Dal Lake to coordinated sewage disposal and redevelopment of the existing residential areas within the lake.

Devise coordinated sewage and waste collection and disposal management plans for the 22 geographic areas (Mohallas) and the house boats areas.

Undertake massive tree planting and related soil conservation areas within the catchment area.

Identify major sources of pollution within the catchment area and subarea plans for sewage and waste management.

In my first writing I suggested a seven step work program for the Dal's restoration, which centered on honest and open public participation. First three steps would identify the Dal lake impact area, summarize findings and recommendations done in the previous studies and identify existing stake holder groups including stakeholder physical boundaries (Mohallas) within the impact area. The next four steps would organize stakeholders at local area level and regional level. Hold open public meetings to, on one hand provide information and, on the other hand, collect public input to ascertain community perceived issues. Based on the public input the

conservation program would identify immediate action tasks to improve the lake environment (cleanup, removing blighting influences) and also institute long range development initiatives.

It seems like the Dal restoration project as presently constituted continues the old top down planning approach. Such an approach results in planning decisions such as the Kashmir government committee, on one hand, arguing “paucity” of land for creating an adequate size settlement basin for trapping the nutrient rich eroded soil suggested by the Enex report and, on the other hand, insisting to “eliminate” the most productive agricultural land in Kashmir and a community that cultivates the land.

As I had suggested in my earlier writing the floating gardens of Dal provide four vegetable crops a year, and the humus soil of floating gardens is ten times more productive than regular soil. There is “paucity” of such land in Kashmir.

The floating garden area has very limited free water surface, except in the very shallow – less than 1 meter deep - channels. Enex pointed to the difficulty and cost of disposing of the dredge material, and also the social disruption of large number of displaced families to be accommodated. In addition, the loss of vegetable production from the floating gardens would be difficult to recover from other sources. The question of water quality, pollution and the nutrient balance, was to be the focus of Dal rehabilitation, Enex pointed. The development projects must therefore be to ensure that the nutrients are contained behind an effective barrier and released only near the outlets of the lake, and that the houseboats be confined to areas of easy access near the lake outlet where incidental pollution would be swept out of the lake.

Visioning the Future Dal

The Enex proposal to separate the clear water area from the agricultural area by a bund is an effective means of arresting the future deteriorating of the lake. The bund will have a place to provide sewer. And thus handle one of the main factors contributing to the pollution of the lake from the pressure of human settlement along its shores and within the lake basin.

Building on the Enex proposal imagine the earthen bund, as pedestrian promenade with restricted vehicular entry, along the southern shore of Dal waters from Dalgate to Hazratbal, complementing the boulevard on the north shore. Imagine this bund lined with weeping willow, cherry and almond trees. Imagine the houseboats clusters around lotus gardens on one side of the bund; and on the other side more lotus gardens as a foreground for a flourishing Malyari community among gardens of vegetable and flower crops.

Make a Choice

Citizens have a choice: Continue to focus our wrath, like the official circles of Kashmir, on the poor illiterate inhabitants of Dal and elimination of encroachments that have limited bearing on continued deteriorations of Dal. Or, learn and address the underlying issues and work with the Dal inhabitants to enhance Dal.

Some questions to be asked:

As an alternative to 375 crores expenditure to relocate 5,000 families from the Dal, why not use the money to improve the sanitary conditions of the Dal dwellers in place. If the “floating-sewers” (official proposal) can work for house boats they can work for houses as well.

Floating septic tanks for house boats in the Dal is a faulty proposal. Imagine a thousand leaking tanks. Who will be responsible for this visual blight and the management nightmare?

Converting the floating garden area into fresh water area, even if economically and physically possible, is untenable. Floating gardens land is the most productive land in all of Kashmir. It provides employment. If done right the floating garden area, reconfigured to ensure controlled run-off, can be a unique aesthetic element of the Dal. Otherwise, what use is the new “water”?

Resurrecting the Enex proposal for the bund is a rational means of making the present floating gardens area into an improved asset. As noted above, the proposed earthen bund would itself add a unique esthetic element to the Dal landscape, complimenting the Boulevard along the north shore of the Dal. Together with revitalizing the housing and boats areas in place and drainage management of the catchment area, the new bund will ensure a speedy, economically viable and unique recovery program of the Dal.

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