

Learning to Build Infrastructure



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Constitution of the Democratic Socialist Republic of Sri Lanka

The supreme law of this country, the national constitution of Sri Lanka in which provision has been made regarding the welfare of the people which includes the environment in which they live and the necessity to protect and conserve the environment. This provision is available in the constitution and the relevant clauses are reproduced below:

27 (2) (c) "The realization by all citizens of adequate standard of living for themselves and their families, including adequate food, clothing and housing, the continuous improvement of living conditions and the full enjoyment of leisure and social and cultural opportunities."

27 (2) (d) "The rapid development of the whole country by means of public and private economic activity and by laws prescribing such planning and controls as may be expedient for directing and co-ordinating such public and private economic activity towards social objectives and the public weal;"

27 (9) "The State shall ensure social security and welfare."

27 (14) "The State shall protect, preserve and improve the environment for the benefit of the community."

28 (f) "To protect nature and conserve its riches."

Infrastructure in the Water Sector

The Large, Medium and Small infrastructure in the water sector of Sri Lanka to which I am somewhat biased, was largely neglected until 1970, when the Mahaweli Ganga development scheme was implemented.

During the time of construction and the subsequent the commissioning of the Polgolla diversion and the Bowatenne Reservoir and also the augmentation of the Kala Oya Basin, the national priority was irrigation. During the last 3 decades the priorities have changed and Irrigation is a priority no more. With the augmentation of the Kala Oya basin the necessity to supply water to the city of Anuradhapura and Kekirawa has become a commitment of the government. Water has to be supplied for drinking and domestic purposes, particularly to the city of Anuradhapura especially during the months of May and June. This is even at the expense of small areas in the Kala Oya basin for irrigation purposes, When the National Water Supply and Drainage Board (NWSDB) found that the Nuwara Wewa Reservoir was inadequate to supply water to Anuradhapura with its expansion during the last decade or so, a larger water supply scheme at Thuruwila, was built north-east of Kalawewa to supply larger quantities of water to Anuradhapura and Kekirawa. The government had pledged to the donor countries that irrigation would be given priority over everything else in the implementation of this project. The Ceylon Electricity Board prefers to have water in the Kotmale Reservoir at all the times for release only in case of emergency. But if we are to meet the irrigation demand or the commitment we need water in all the reservoirs and also to supply water from all those reservoirs in cascade on Mahaweli Ganaga.

Land cleared for construction



There have been instances where external as well as internal political environment has influenced national policies. An example is the Upper Kotmale Reservoir where several alternatives were proposed as the reservoir should not affect the beauty of the waterfalls in and around Talawakelle in anyway. But according to information we now have, it is now being resolved. This is a clear example of the extent these internal political environments influence the building of such infrastructure in this country.

Infrastructure in the Building Sector

Considering the building sector especially in Kandy where large extents of land on the hilltops have been cleared for construction of houses and hotels and so on without any concern for soil erosion and removal of plants and trees etc. This is also a very big threat to the watershed of the adjacent rivers because the river that conveyed fairly clean water sometime ago is now brown in colour. We now have thought about a national watershed management policy which although finalized towards the end of last year has not gone before the Parliament yet. Last year the most spoken subject were the landslides and floods in the South and the Ratnapura district and so on. Now it is a somewhat forgotten subject till the next one comes. There have been various committees and disaster management centres set up. Also various proposals were made to set up disaster management authorities in place of disaster management centres, to protect people or to make the people live on safer areas.



Natural water retention



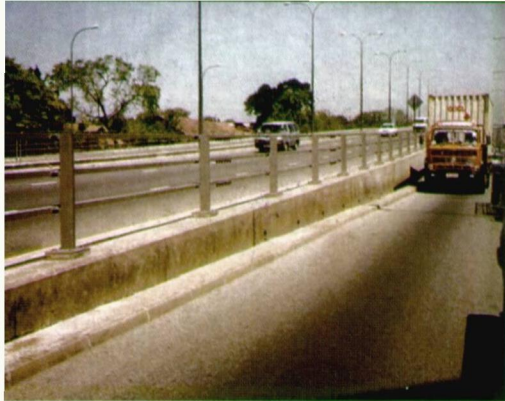
Open University of Sri Lanka

Consider too the Open University of Sri Lanka and its location. It would be interesting to study the information about the cost of building the super structure and the sub structure. in the construction of these uildings. These buildings, except the single storeyed ones, have been constructed on concrete / steel piles, driven to rock. Obviously the cost would have been substantial as also clearing the environment and re-training the stream and protecting the banks with Gabions would have entailed substantial expenditure. Quite In contrast to this is the location of the University of Peradeniya. More than 50 years ago, the suburb on which it is situated was virtually unknown. This site was found to be ideal for an academic institution at tertiary level.

Another detrimental effect that we experienced very much later in early year of the last decade was the worst flood experienced by the Colombo residents during the last 50 years or more. In case of heavy or sudden floods, these marshy areas have served as detention, reservoirs or detention areas. Now these are all filled with earth and reclaimed and the escape routes are somewhat blocked. Colombo city is one where the highland areas are little over 50 per cent. Even on those highland areas, a substantial percentage is occupied by the roads, playgrounds and even the General Cemetery at Kanatte is one such area. They say it never goes under water. The highest land is found on the western coast on which the Colombo - Galle Road runs. So we have to pay a lot of attention in building in these areas. Even in Battaramulla and Pelwatte areas we have to check whether the lands are above the flood levels.

During the floods that occurred in the early 1990s the Minister in charge of the subject who was residing at Royal Park was marooned in his home for a few hours.

Some of the buildings constructed in the Mahaweli Development area were designed by an Architect employed by the European Union who was a foreigner from Israel. Of course, I admire and appreciate what he tried to do. He was taken up by the 'Meda Midula' courtyard concept of our old houses and adapted it into his design for a large number of buildings which



Baseline road development

were constructed in Mahaweli System-C - some houses are seen even today . Now this area was infested with wild animals 10 - 15 years ago. When the inmates of these quarters were away at work in the morning the monkeys had a nice time. They got into the house through the court yard and ransacked it. Ultimately, the area had to be covered with temporary transparent sheets. Mahaweli System-C to prevent the monkeys entering through the roof.

Infrastructure in the Transport Sector

The infrastructure in the transport sector is a controversial issue. The Southern expressway - the cost of it at today's prices is Rs. 28 billion - some critical comments that were expressed on this issue are been thrown at it. Why not improve the existing highways and link roads. Are there such express roads in India which is almost a continent? What about the traffic and road discipline? In this country we have to live with cattle and dogs that cross the road all the time during day and night. When people settle on either side of any road in this country in no

time people put up boutiques and houses and they even encroach the reservations. The road will no longer be an expressway. In the area earmarked for construction consideration, a lot of paddy fields. What I want to point out is whether these are measurable in terms of rupees and cents. If yes, what about the loss to the people, socially.

We have spent large amounts of money on compensation to construct the Baseline road. The cost of construction is low, but the cost of compensation has been tremendously high.

On Baseline Road railway line and the highway, both are somewhat exposed and people go across very freely. Of course unless there is no intention to develop the railway, this appears alright. But we have spent so much on the overhead section at Dematagoda, whether we could maintain the same behaviour or the same pattern is a question.

Environmental Impacts in upper Watershed

The absence of a national watershed management policy, clearing of hilltops, cultivation of food crops in the hills with potatoes and vegetables and also extensive use of agro-chemicals have resulted in the pollution of large reservoirs. Particularly Kotmale reservoir is heavily polluted with Lead (Pb) and so on due to the fertilizer addition in the tea plantations. The areas that are cleared and abandoned are not re-afforested with appropriate indigenous plant species. The eroded and excavated lands are not rehabilitated.

Urban Development and Infrastructure

In the development of infrastructure in the urban areas or urban development with physical infrastructure, even in Mahaweli areas there are towns that have been upgraded. There are towns that have been built afresh like Welikanda, Dehiattakandiya. In the design of these townships, facilities for garbage disposal. Storm water drainage systems are not constructed, sewerage systems are not constructed and recreational facilities are not provided.

Protection from Monkeys



International Funding Agencies

This is a very important area because now in the early 70s until mid 1980s, the Government of Sri Lanka had obtained without much stringent conditions services of foreign consultants and foreign contractors. But today this is a built-in provision in the loan agreement. You cannot find a single agreement without these conditions. But up-to 1985, from my experience we had either limited consultancy, or no consultancy. Of course there are still some donors who do not advocate engagement of foreign consultants. But there are some donors who insist that there should be built-in provisions in the loan agreement to engage foreign consultants and contractors. What happens is most of the work is being done by the locals, only a few consultants, but a large portion of the loan goes back to the donor or donor country. This is a very serious issue.

Then are we not concerned that there is not much technology transfer in engaging both foreign consultants and contractors.

Conclusions and Suggestions

(i) Planning of Infrastructure

I consider that in the planning of infrastructure, participation of beneficiaries and stakeholders is of paramount importance. Also compatibility with national policies and existing infrastructure is also important. I say this, to emphasize on the second one because last year the Government set up a national physical planning department. I also participated in the initial deliberations but they were not aware that a new concept is being introduced to this country based on the river basins, because this country can be divided into 103 river basins except the Jaffna peninsula. So the government as a policy has accepted that for all purposes the river basin should be the unit of development in which the bottom-up approach could easily be developed.

(ii) Bottom- Up Or Top-Down Approach

Bottom up or top down, let me give you two examples. This is Welikanda Township that was built in the jungle. This is a top down approach. In this area there were no people before and therefore depending on the project there was no alternative but to adopt the top down approach.



Welikanda Township



Bogambara stadium



This is a cluster of buildings taken from Melbourne I believe, that is where they pay lot of attention to infrastructure development. They are concerned about disaster management. In fact in Japan, subsidence is a very serious problem. It has not happened in this country because we have only very few high-rise buildings. In Australia they have already realized that they should pay lot of attention to high-rise buildings before designing and constructing them. An example of the bottom up approach is the Bogambara stadium in Kandy.

(iii) Loan Agreements

Very often, loan agreements with donor agencies are negotiated by non-technical officials who are not quite conversant with the technical and/ or environmental aspects of a particular project.

(iv) Social, Cultural and Religious Aspects

Projects should not be implemented on the basis of economic considerations alone. Social, cultural and religious aspects should also be given due consideration.

(v) Environmental Impacts

Environmental aspects are receiving increasing consideration at present due to the action by the public. However, it is doubtful whether these aspects receive the consideration that they deserve. ▲

High-rise buildings In Australia.

