

Mysteries below and beyond: Diyatalawa and Samanalawewa



What on earth has happened to our scientists and engineers? Where are they when their country needs them most? These are questions that we have asked many times in the past in these columns and elsewhere in this newspaper. It appears that crisis after crisis is overwhelming us, but our scientists and engineers are keeping mum. Or worse still, as one letter writer to the editor pointed out last week, some are shamelessly twisting or changing their own words.

The problems associated with the Samanalawewa hydro power project offer a case in point. This project has been plagued with engineering and environmental problems from the beginning, and the various solutions that were proposed and applied from time to time only seem to have served as stop gaps. Now the dam and reservoir are faced with major problems, threatening the lives and properties of several hundred families. Those who remember the Kantalai dam breach and the disaster that followed will no doubt draw parallels from that incident.

As it was then, it is so today: the engineers who are consulted, involved and entrusted with the implementation of these massive projects appear to be carrying out the tasks assigned to them, with scant regard to the consequences or implications. Others clearly see what is wrong, but prefer to keep quiet, perhaps to safeguard their own interests. The few who speak out are branded as rebels or trouble makers.

Then, of course, there are those who change their version of the story from time to time, generally in keeping with preferences and fancies of those who are in power at that moment.

In this thought provoking and probing article, one of our regular scientist-contributors Mr. A. T. G. A. Wickramasuriya (retired Senior Deputy Director of Irrigation and civil engineering consultant) addresses two issues that caused considerable public concern in the past few weeks: the Diyatalawa phenomenon (which was no volcano after all!) and the current problems with the Samanalawewa project. He too poses the pertinent question as to why some of our professionals seem to be hesitant, reluctant or outright unwilling to get involved in matters of national importance involving science, technology and engineering aspects. This article will be continued next week.

Science and technology has now advanced to a level when a space craft could be aimed at planet Mars. We have also succeeded in triggering the gigantic forces of nuclear power. But we are still at the mercy of events like volcanoes, earthquakes and tidal waves. Here in Sri Lanka thank God we have so far not been exposed to such disasters. But floods, droughts, land slides and coast erosion continue year after

year on an increasing scale, despite all what the authorities concerned claim to be doing.

There are also many more events that take place globally and locally, on the surface of the ground, and above it, and below it, which go un-noticed. Of the few that are at times noticed: (a) their importance is not fully realized, and are soon forgotten. At times the event is not even recorded. Not far from Samanalawewa is a phenomenon

which stands out as one of the exceptions.

But though recorded, has been ignored. (The recording is by one young engineer of the Irrigation Department in 1961. More on this follows). (b) Others are like the fire we had at Diyatalawa. They are no doubt highly exciting and thought provoking. Specially so if the suggestion is made that the hill country is now on top of a Volcano, and the fumes have already appeared in two

places in Diyatalawa.

Several other theories too have been put forward by other scientists of repute. This no doubt is most encouraging, as the matter appears serious enough to be investigated from all possible angles. We may not be on top of a Volcano, but it may be a indicator of some other event equally dangerous taking place not far below

and flowed through it had been found in Kalawana, and that thousands are rushing to see this wonder of Nature. Peeling off the reporter's make up, the story centred round the underground river of Paragala.

"Rivers are like politicians in a way. Some die at the peak of their flow. Some fall great heights and flow away in utter

by A. T. G. A. Wickramasuriya

the surface we stand on.

"UNDERGROUND RIVERS"

It is with a degree of pride that I wish to quote the following excerpts from an article that was published in the October 1961 issue of the 'Journal': Institution of Engineers, Sri Lanka under the above title. The author is Mr. S. H. C. de Silva, the young engineer mentioned earlier. He was then in charge of the Ratnapura, Sub-Division of the Irrigation Department. He states:-

"Going underground, in common parlance, is hiding. The term can cover the entire spectrum of existence...."

"As they go underground to suit their convenience or even survival, some come out at times appropriate. Whether the subject at issue is the London Underground or the Paragala River, makes little difference...."

"The discovery so to speak, was revealed by the press when it splashed the news that an underground river which pierced a 'mountain'

humility and langour whilst others are made to do penance in volute chambers and needle valves. Still some others so dissipate themselves, that they disappear in the desert sands, unwept and unsung. A few do re-surface as a spring or an oasis and do a 'de Gaulle'."

"Paragala river in the picturesque and strikingly rural Kukul Korale of the Ratnapura District, is a tributary of the Kalu Ganga, one of the major rivers of Ceylon..."

"The Paragala river embarks on its subterranean journey in the village of Paragala to flow unseen for nearly a half mile, and emerges to see the light of day in the village of Pimbura. Like any other river it flows down the valley till it meets the reporter's 'mountain' at Paragala, which is about 15 feet high. Here the entire flow is sucked in three enormous vortices and simply disappears underground. At Pimbura it discharges through three cavernous outlets to continue its journey to meet the Kalu Ganga."

"During storm the river level rises rapidly, the 'mountain' is topped, and water flows on the elevated bed of valley, also about half a mile long. When these conditions attain, a slow moving surface flow coexists with a fast moving siphon draw off in the underground passage. During dry weather flow, it is remarkable that the water in its passage underground is crystal clear at outlet as at entry, showing no sediment transportation, as one would expect in a case like this."

"For Kalawana this phenomenon, is not a rarity, as it is repeated in the Koswatuganga in the neighbourhood. The underground passage in this river is limited to a few chains, but one could espy its course through the boulders, thereby providing an explanation of the phenomenon as being due to earthslips on boulder stream river valleys, whilst the water piped its way through. The earth surcharge itself got reinforced by the roots of the lush vegetation on top. The mesh of fibrous roots stabilised the overburden for the passage of underground flow. Elsewhere in the world, when a river valley got blocked by earthquake or slip, a lake would be born, but in Ceylon, it just had to be different."

Sri Lanka different

I agree with the above statement that Sri Lanka had to be different from 'elsewhere in the world' in several ways, geographically, and more particularly where its geology, and still more where hydrogeological problems

are involved. Leave alone politics and politicians.

It is not my intention to enter into the controversies that exist among the world famous geologists on some of the many basic questions which yet remain unanswered:- Why, for example, is there such an uneven distribution of land between Northern and Southern Hemispheres? What actually causes volcanoes to erupt? Why should one of the coldest countries in the world, viz. Iceland experience geothermal activity?

Nevertheless, since global phenomenon, as for instance 'El Nino' is a large scale example of atmosphere - Ocean interaction, which can effect the climate of Sri Lanka too, and since the question of volcanic, and earthquake activity has already been brought up in connection with Diyatalawa, I shall limit myself to quoting just three sentences from the synopsis of the paper I presented at the Federation of Engineering Institutions of South and Central Asia, on October 1990.

This seminar was on 'Natural Disaster Prevention'. The topic of my paper was:- "Some Thoughts on Causative Factors and Mechanics of Natural Disasters." Excerpts:- "The Litho Sphere, Hydrosphere, and Atmosphere consisting of solid, liquid and gas respectively, in very broad terms form

the Earth. All these have been and will continue to be in a dynamic state, as evidenced by earthquakes, and volcanic eruptions: tides and ocean currents", weather and cyclones respectively....."

"The paper quotes details relating to some of the major natural disturbances, and goes a step further to show that human activities can be a cause 'triggering' such disturbances".

Samanalawewa

'The Island' of 4th November 1992 carries a letter by Mrs. Kamini Meedeniya Vitharana, President Ruk Rakaganno, she has condemned the Samanalawewa Project. Her statements have helped me to cut down on what I too would have brought to light.

She has emphasized that:- "Professional people should have the courage of their convictions and come out with their opinions. If the CECB had stated their views publicly the Government would have been bound to take notice. At present it is left to do all the talking, and they cannot be expert opinions on everything - nor do they try?" (The last sentence refers to those concerned with protecting the environment)

In this connection a very deplorable situation, based on my personal experience comes to mind. A

situation when one professional who is privileged to take the chair at a seminar organized on a technically controversial project of major national importance, debars or "clamps down on technical points that another professional would wish to emphasise, or to express a different point of view, or disagreement?"

To quote at least one of the several specific instances of the above, I wish to refer to the Seminar on the Samanalawewa held on 13th March 1992 at the ICTAD Auditorium, Colombo. The seminar was organised by the Sri Lanka Branch of The International Commission on Large Dams.

The proceedings of that Seminar were tape recorded, and will bear testimony as a classic example of one such situation. In response to a request from a member of the audience to release a copy of the proceedings to the Institution of Engineers, for the information of our engineers (about 4,000 in number) the Chairman agreed to do so after getting approval from the International Commission on Large Dams! Hope the tape recordings will be preserved at least for the benefit of the historians now engaged in writing the History of Engineering in Sri Lanka. They will then have first hand information, and not Doctored versions.

In the meantime let me place on record that I too attended

that Seminar, and within the half a minute I spoke at discussion time, my concluding remark after listening to all what was said by the speakers that morning, was "that Samanalawewa was a failure". Having now witnessed all what had taken place at the site since then, the question arises as to why all the foreign and local experts who held positions of authority, or were in positions to get in touch with even the highest in the land, kept silent? During that critical stage, the people, not only below the dam, but below its embankments, were being exposed to a (three hundred) foot high wave coming down on them like a flash of lightning. It would have been a disaster many times worse than what happened at Kantalai on the 20th of April 1986. An act of God very fortunately issued a timely warning, when as reported, water started to gush out from under the natural embankment!

As in the cause of Kantalai, nothing less than a Commission of Inquiry can bring to light the facts that are hidden may even be by our professionals.

In my view no amount of further drilling and cement grouting can make the reservoir safe enough to be impounded to a (reasonable) height, without risk.

These are among the comments I was going to make at the Seminar, but was restricted from doing so, by the Chairman.