

Perpetual natural heritage relayed with good volition

A Staff Member (MEPE)

The government is working hard for national industrialization in its bid to improve the economic sector. Development in the electric sector is at the centre of the process. So, the government is implementing electric power projects one after another for raising the electric power sector.

Today, Myanmar has seen large numbers of private-run and State-run factories and plants, a sign of industrial development. National productivity and use of modern farm machinery are on the increase in the agricultural sector. The electric power consumption has increased several times due to extensive urbanization and high living standard of the people. Many countries have turned to large-scale generation of electricity from hydropower, wind power, gas-fired power, coal-fired power and nuclear power. Only two of them: wind power and hydropower are eco-friendly processes.

According to the statistics, on average, Myanmar's annual electricity consumption increases by 15 per cent. Therefore, hydropower projects are being implemented with the use of rich watercourses across the nation.

The electric power sector plays a crucial role in improving the socioeconomic status for the people. To implement a hydropower project, feasibility study is carried out and designs are drawn first. The process also calls for measuring annual rainfalls of the regions along the river or creek that is to be dammed for the project, number of places available for projects, possible effects on the regions upstream and downstream the watercourse. At least, the process takes about 18 months.

Based on the findings of the feasibility study, the most suitable site is chosen, and further study is done till a detailed design is drawn. This stage takes about 12 months.

So, it takes about 30 months to complete feasibility study and drawing a design. A hydropower project takes a certain period for detailed feasibility study even before it is put into action. Based on its size, a hydropower project takes three to 10 years and costs massive manpower, huge funds and technology.

In 1988, Myanmar had only nine power plants: two hydropower plants and seven gas power plants with installed capacity of only 529 megawatts in total. Now, it has 17 hydropower plants, one coal-fired plant and 14 gas power plants with the total installed capacity of 3360 megawatts. So, between 1988 to date, the nation has seen 23 more power plants with the total installed capacity of 2831 megawatts. The government launched the 30-year electricity strategic plan since 2001-2002 for satisfying the

domestic demand of electric power. The total installed capacity of the ongoing 63 hydropower projects and coal-fired power projects, totalling 66 is 45,303.5 megawatts.

The Republic of the Union of Myanmar has a huge number of watercourses from which electricity can be generated. It is implementing hydropower projects in the basins of its main four rivers. Some of them are those hydropower projects in the basin of the Ayeyawady River that rises in Kachin State.

Now, further impetus is given to the implementation of the hydropower projects to meet the local demand in a short time. As a result, the generation of electric power is picking up momentum year by year. Yet, some persons and organizations are manufacturing fabricated news stories to mislead the international community and the people into misunderstanding the ongoing hydropower projects at the confluence of the Maykha and Malikha rivers that meet and form the Ayeyawady River.

The hydropower projects at the confluence total eight: namely Myitsone, Chipwe, Chipwenge, Wusauk, Khaunglanphu, Yinan, Fizaw and Laizar whose total installed capacity is 18,499 megawatts. The projects are all due to be completed in 15 years. They create jobs for local people such as pre-engineering stages including production of gravels and sand, constructing structures and building roads. According to the figures, the projects so far have identified over 2600 jobs for Myanmar people.

Due to the hydropower projects, there will be an all-weather road (about 261 miles long from the confluence to Yinan) on the east bank of the Maykha River in Kachin State, and an all-weather road on the west bank of the Malikha River (about 170 miles long from the confluence to Laizar). To complete the projects, seven bridges will be constructed: one in the south of the confluence, five on the Maykha River and one on the Malikha River, each of which can withstand 80 tons of loads per vehicle. Now, an Ayeyawady River bridge is being built in the south of the confluence, which is due to be completed this year. The roads and bridges that will come into existence will help improve the social and economic affairs and relations between national brethren in the state, as well as social relations and friendship between one region and another in the state.

When in operation, the power plants will give jobs for local youths and educated people. And the electricity generated by the plants will speed up local industries, and social affairs and education, health, economic and transport services.

In addition, issues for environmental conservation and rehabilitation are being addressed in all seriousness as a national duty. All necessary

measures have been taken thoroughly since the pre-feasibility study to ensure no adverse effects on the regions downstream the Ayeyawady River. The average annual rainfall of the region where Myitsone Hydropower Project is in progress is 91 inches. The volume of the water that flows into the river in a year is 128.52 million acre feet. The concrete face rockfill dam is 4300 feet long and 458 feet high. Its water storage capacity is 9.788 million acre feet, which accounts for only 7.6 % of the inflow water. And 92.4 % of the inflow water flows into the river again. Moreover, the storage water of Myitsone Project will flow into the river through the outlet channel when the power plant is in operation.

So, the project has no adverse effects on the agriculture, businesses and social work. When it comes to the monthly flow of the Ayeyawady River, its current rate is 1830 m³/s in the dry season from November to April. However, it will increase to 2120 m³/s at the same period when the dam is completed. Due to the storage of water by the dam, the current rate will decrease by 3.5% in the rainy season, but increases by 16% (from November to April). So, the water level can be about 1.5 feet higher than normal downstream the river in the dry season.

In general, seawater enters the Delta in summer in which the water level of the river gets low, and that has impact on the farmlands at the mouth of the river. Myitsone Hydropower Plant will be kept in operation in summer, so the water from the dam will flow into the river through the outlet channel of the plant. Due to the operation of the plant, the water level of the Ayeyawady River will be about 1.5 feet higher than normal in summer. So, that will contribute towards blocking seawater from entering the region and the water transport along the waterway.

The dams and hydropower plants on completion will be able to bring the following benefits to local people of the riverside regions along the rivers and creeks in the Regions and States.

- The courses of the waterways can be changed for better positions.
- Hydropower produced by the plants will be supplied to local people.
- Irrigation water can be provided as needed for farmlands.
- The projects will prevent formation of sandbanks to some extent downstream the river.
- They will prevent floods when rivers are swollen.
- They will prevent the entering of seawater into riverside regions.

In connection with the hydropower projects along the confluence of the Ayeyawady River, the Maykha River and the Malikha River, Pyithu Hluttaw Representative U In Phon San (a) U In Htu Phon San from Machanbaw Constituency in Kachin State, Amyotha Hluttaw Representative U Za Khun Ting Ring from Kachin State Constitution (4) and Amyotha Hluttaw Representative U Khin Maung Yee from Ayeyawady Region Constituency (6) submitted proposals at the first regular sessions of Hluttaws. The minister for Electric Power-1 answered the questions.

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The Ministry of Electric Power-1 and China Power Investment Corporation (CPI) of the People's Republic of China signed the MoU on the hydropower projects in the confluence of the Ayeyawady River and along the Maykha River and the Malikha River on 28 December 2006. According to the MoU, the projects will be implemented with the assistance of a scientific organization for the water resources. In December 2007, Changjiang Survey, Planning, Design and Research Co Ltd (CDC) completed the Planning Report on progress of the hydropower projects. The CDC completed the Term of Reference (TOR) of Environmental Impact Assessment (EIA) Report in March 2008, and approved it in June 2008. And it finalized the Feasibility Research Report on Myitsone Hydropower Plant on the Ayeyawady River in October 2009.

Altogether 260 members from the CDC, the Ministry of Water Resources and Chinese Academy of Science, Institute of Hydrology (IHE), South China Botanical Garden Chinese Academy of Sciences (SCBG), South China Institute of Endangered Animal (SCIEA), and Biodiversity and Nature Conservation Association (BANCA) carried out the feasibility study on the Environmental Impact Report of Hydropower Development in Upper Reaches of Ayeyawady River Report from January to July in 2009. The 260 members included over 100 experts from China and Myanmar.

The 569-page report features 12 chapters, as follows:—

- (a) introduction
- (b) overall review of the project
- (c) analysis of feasibility study and environmental situations
- (d) finding out environmental impact
- (e) assessing and deciding on environmental impact
- (f) assessing and deciding on social impact
- (g) analysis of environmental impact on surrounding areas of the model hydropower plant
- (h) reducing environmental impact
- (i) analyzing environmental impact from the economic point of view
- (j) public participation
- (k) environmental conservation plan
- (l) resolutions and proposals

The CDC completed the Term of Reference (TOR) of Environmental Impact Assessment (EIA) Report manifests the benefits from the hydropower projects upstream the Ayeyawady River as follows:—

- (a) The hydropower projects upstream the Ayeyawady River will have installed capacity of about 18,400 megawatts, will be able to produce 99,110 million kilowatt hours a year, and will contribute towards the prevention of river floods, water transport and other related businesses.
- (b) The projects will also help improve the transport, communications and industries.
- (c) Regarding flood control, the projects will have storage capacity of about 0.85 billion m³. So, floods can take place in Myitkyina only once in every five to 20 years.
- (d) The waterways in the watershed areas will improve.
- (e) If compared with other coal-fired power plants, the hydropower plants in the basic of the Ayeyawady River will emit far less carbon dioxide and cause far less air pollution.
- (f) Resettlement and rehabilitation tasks will help reduce environmental impact and improve the

economy and the natural ecology of theregions. Every hydropower project has strong points and weak points. If a hydropower project is considered to be more of good results than undesirable consequences, it is implemented. And if a hydropower project is considered to be more of undesirable consequences than good results, it is to reduce as few weak points as possible. With respect to the Environmental Protection, some of the following programmes have been completed and some are in progress.

- (a) to avert social, economic and environmental impacts in constructing hydropower structures
- (b) to minimize environmental impact by utilizing water resources effectively
- (c) not to sacrifice the water quality
- (d) to conserve the species of the fish and other aquatic animals
- (e) to resettle local people who were displaced due to the projects
- (f) to ensure no adverse effects on the religion, social affairs and culture
- (g) to minimize loss of forests, farmlands and resources
- (h) to give health care to the staff and workers of the projects

Under the close instructions by the government and harmonious supervision by the Ministry of Electric Power-1 and local administrative bodies, the resettlement plan could be implemented for 2146 people of 410 households from five villages that are inside the area of Myitsone Project: Tanphe, Kyeinkharan, Myitsone, Khappar/Aunggyayan and Daungpan villages. Now, Tanphe, Kyeinkharan and Myitsone villages have been upgraded to Aung Myin Tha Model Village; and Khappar/Aunggyayan and Daungpan villages, to Maliyan Model Village with better conditions. The main roads of the model villages are of concrete type. Based on the area of previous house compounds, the relocated people have had 80 ft x 60 ft, 80 ft x 80 ft, 100 ft x 100 ft, and 100 ft x 120 ft lands with fences.

So far, in the model villages are 410 two-storey wooden houses, one basic education high school with a two-storey building, three primary education schools, one police station, one post office, the office of the administrator of the General Administration

Department with a fire service station, a 16-bed hospital, and four Buddhist/Christian buildings. The two-storey wooden buildings are of Kachin traditional style, and other buildings are substantial concrete ones. All houses are supplied water and electric power, and their conditions are much better than previous houses. The villagers are at the model level, close to the road linking between Myitkyina and the confluence of the river. So, they are like a small town, and the relocated residents are happy with better living conditions.

Moreover, local administrative organs have compensated for the removed farmlands and perennial crop plants at the rates fixed in talks, and land allotments have been allocated to the farmers. The villages and locals of the irrigated areas upstream the project have been allocated land allotments arranged by local authorities in order that they will enjoy better living standard than previous to the project.

All the hydropower projects the government has been implementing across the nation including the ones on the confluence of the Ayeyawady River, upstream the Maykha River and the Malikha River in Kachin State are prudent ones for all-round development of the regions, and creating job opportunities. So, they are the facilities of national heritage.

To sum up, the government has been investing heavily in generation of electric power and building national grids and power houses to supply electricity to the people. It indicates that the government is taking measures in all sectors, utilizing natural resources and aquatic and terrestrial resources across the Union most effectively, in the long-term interests of the democratic nation and the generations to follow. In its drive for improving the infrastructures with benevolent attitude, the government aims to narrow the gab of the rich and the poor and accelerating the development momentum of respective regions in order to hand down the perpetual natural heritage.

Translation: MS

Chart showing monthly water-flowing rate of Ayeyawady River

