The Story Of Arunachal Pradesh PWD And Road Development In Arunachal Pradesh

Introduction

The story of road development in Arunachal Pradesh is intricately intertwined with the evolution of the Public Works Department of Arunachal Pradesh. One cannot think of road development and development in any other sector for that matter in Arunachal Pradesh, without the PWD. The Arunachal Pradesh Public Works Department has been and is the premier agency in the field of construction and maintenance of roads in the State. Till about two decades ago, it was the only government agency that shouldered the entire responsibility of road building. Since, road and transportation play a major role in socio-political evolution of a territory and socio-economic development of the people, the contribution of the Arunachal Pradesh Public Works Department cannot be over-emphasized. In other words, the Arunachal Pradesh Public Works Department is a pioneer of the overall development of Arunachal Pradesh.

The Beginnings

In the early post-Independence era, road infra-structure was almost non-existent. The state barely had 160 Km of dirt roads at the time of Independence. Travel and transportation involved days of march on foot on porter and mule tracks. Log Bridges and Cane Foot Suspension Bridges, constructed primarily by local people using traditional local techniques and using locally available materials, were the means of travel across rivers, rivulets and other natural gaps. Infrastructure development of surface communication was in the hands of a handful of officers of the CPWD posted in the then territory under External Affairs and subsequently, NEFA from Shillong. But a turning point came in the aftermath of the 1962 Chinese Aggression. This event drew the attention of the Govt. of India to the necessity to immediately start building a road infrastructure in the region. Quantum of investment in the road development increased manifold from then on. Thus, began the long journey.
In those days, road building and infrastructural building activities were handled by the CPWD, headquartered at Shillong. With passage of time the work load increased, and it became increasingly difficult to control and co-ordinate the developmental activities from Shillong. The NEFA was made a Union Territory in 1972. The new Union Territory was named Arunachal Pradesh. With this, the pace of development became more rapid. To meet the demands of this rapid change, three CPWD Circles were shifted from Shillong and relocated at Itanagar, Basar and Jairampur respectively. And finally, the Arunachal Pradesh Public Works Department was created on 22nd of December 1981. Thus, it is a legacy of the CPWD. It handled all civil engineering works in the state that included construction and maintenance of roads, bridges, buildings, water supply schemes and flood-protection till many years later, when other civil engineering departments such as the Public Health Engineering Department, Water Resources Department and Hydropower Development Department were carved out of it. Till 1985, it was under the control of one Chief Engineer. Its jurisdiction was bifurcated into two zones with one Chief Engineer heading each zone in 1985. And today the Arunachal Pradesh Public Works Department has three field Chief Engineers each heading one field zone and one Chief Engineer each for “Design and Planning” and “Survey and Investigation”. It also has a Chief Engineer (Highway) exclusively for looking after the works related to the Trans-Arunachal Highway and SARDP-NE.

**Problems In Road Construction**

Topographically, Arunachal Pradesh is mountainous. The young and unstable fold Himalayan range runs from the north-eastern end to south-western end of the state while the Patkai Hills range passes through south-eastern part. The altitude ranges from 150 m amsl in the foothills to 7300 m amsl in the mountains. The region has a dense forest cover of about 82% of the total geographical area and is drained by major rivers such as Siang, Sissiri, Dibang, Lohit, Dihing, Subansiri, Kameng and Tawangchu and numerous smaller rivers and streams. In the higher altitudes snow-melt is quite substantial and snowfalls are common. The region receives rainfall from 2500 mm to 3000 mm per annum. The state falls in Zone-V
of the seismic map of India. Owing to these geographical factors road construction in Arunachal Pradesh has always been a daunting and costly enterprise and continues to be so. But notwithstanding this, development of road infrastructure has progressed steadily.

Some of the most prominent geography related reasons that make road construction difficult and costly in the state are as under:

i) Very limited working season. In some areas, it is only 3 months.

ii) Tough working conditions.

iii) Requirement of more cross-drainage structures, including major and minor bridges, per kilometer.

iv) Frequent wasting, landslides, cave-ins, etc., necessitating frequent maintenance work during and after construction.

v) Higher labour and cartage / haulage cost.

It goes without saying that because of the above reasons Arunachal Pradesh merits special consideration by the Govt. of India in terms of rate and quantum of funding.

**Achievements So Far**

Beginning with barely 160.00 Km of dirt roads in 1947, when India achieved independence, Arunachal Pradesh made big strides over the years post-independence and achieved a total road length of 15,213.78\(^1\) Km by the year 2005, giving a road density of 18.00\(^2\) Km / 100 Sq.Km. Of 15,213.78\(^1\) Km, roads constructed by the PWD constituted the major part. Apart from roads, numerous major and minor bridges, ranging from temporary to permanent types, have also been constructed over these years. Two of the notable ones are:

i) Motorable Suspension Bridge over river Lohit at Chequenty (Span - 156.50 m) and

ii) Steel Arch Bridge over River Dibang (Dree) (Span – 135.00 m) in the district of Dibang Valley.
Photographs of both are inset.

MSB over river Lohit at Chequenty (Span – 156.50 m)

Steel Arch Bridge over river Dibang (Dree) (Span – 135.00 m)
As to the total road length by the end of the 11th Five Year Plan i.e. by March 2012, the approximate figure is 18,421.00\(^3\) Km. and the corresponding road density is 22.00\(^4\) Km / 100 Sq.Km. However, the exact status will be known after the Digitized G.I.S. Map of Roads in Arunachal Pradesh, being developed in the office of the Chief Engineer, Eastern Zone of the Arunachal Pradesh PWD, is complete. This task is being undertaken as a part of development of a Road Master Plan to facilitate integrated and coordinated road infrastructure development in the state.

**Tourism and Hydropower Development.**

Arunachal Pradesh is considered as one of the 12 mega bio-diversity hot spots in the world. It is rich in flora and fauna. It has two National Parks, eight Wild Life Sanctuaries, two Tiger Reserves, two Elephant Reserves and one Orchid Sanctuary. It has many major rivers and numerous smaller rivers making Arunachal Pradesh the state with the highest potential for hydro-electricity generation in India. No wonder, Arunachal Pradesh is called the Power House of India. Apart from these endowments of nature, it has many cultural sites that attract tourists. Thus, it is evident that Arunachal Pradesh has great potential for eco-tourism, adventure tourism, cultural tourism and hydro-electricity generation. In other words, tourism and hydro-electric generation can be flourishing industries in it. But, without roads these resources cannot be tapped. Development of road infrastructure is essential if these two industries were to flourish. What is more, Arunachal Pradesh has been declared the most favoured tourist destination in the North-East recently.

**Border State**

Arunachal Pradesh, being a border state sharing international boundaries with China (1046 Km), Myanmar (440 Km) and Bhutan (160 Km), road development in the state has always invariably been done keeping in mind national security concerns too. In the remote frontier regions where there are no roads yet, the Army and other auxiliary Defence personnel use the porter and mule tracks in patrolling and safe-guarding the borders. Faced with massive and rapid infrastructure
development on the Chinese side of the border, Govt. of India is also accelerating the development of road infrastructure is this border region. The region could witness further acceleration in road infrastructure building in the near future.

**Environmental Concerns, Climate Change and Sustainable Road Development**

Neglect of environmental concerns while indulging in developmental activities eventually results in floods, draughts, forest fires, storms, out break of epidemics, crop failures, water shortage, etc. Global warming is happening because of accumulation of greenhouse gases, such as carbon dioxide resulting from burning of fossil fuels and destruction of forest. Climate change is a real and present concern of each one of us now. It is no longer a “somebody’s concern”. Therefore, it is high time that we made development of road infrastructure as eco-friendly and as sustainable as possible. Road development should meet the actual needs of the present without compromising the ability of future generations to meet their own needs. The road development activity should be planned and executed in such a manner that it does not interfere with the rich bio-diversity of the region and does not put pressure on the environment beyond its capacity to bear. Any road development that falls below these standards may well be avoided. We should always keep in mind the larger picture of sustainability.

**The Vision / Dream For Future**

Based on statistics that were available from the fields, the density of road works out to be $22.00^4$ Km / 100 Sq.Km. by the end of March 2011 (For the purpose of this article, $22.00^4$ Km / 100 Sq.Km has been taken as at the end of the 12th Five Year Plan also). It is an increase of 4 Km / 100 Sq.Km from $18.00^2$ Km / 100 Sq.Km in 2005. In terms of road length, the length increased to 18,421.00$^3$ Km from 15,213.78 Km in 2005. However, this figure of $22.00^4$ Km / 100 Sq.Km is still far below the national average of 83 Km / 100 Sq.Km and North-East average of 60 Km / 100 Sq.Km. Many of the roads still provide only fair weather connectivity and most of the outpost administrative circles covering far-flung frontier areas are still connected by porter / mule tracks only. Many of the existing bridges are of temporary and semi-permanent type ; they need to be converted to
permanent types. In urban and semi-urban areas such as the State Capital, the district headquarters and other smaller towns, traffic volume has increased dramatically over the last decade or so. Many stretches of roads in these places have their road capacity saturated.

It is clear that apart from constructing new roads to provide connectivity to hitherto unconnected places, what is equally important is to upgrade and strengthen the existing roads; it is important to convert the weak, temporary and semi-permanent bridges to permanent ones. It is also of utmost importance to maintain the existing roads and bridges and keep them in a state of good repair to maximize their use for the benefit of the people. It is not a question of only adding new road lengths but also of making maximum use of the existing ones for providing smooth and assured connectivity. Such an approach may help in making the best use of scant resources allocated for road building and also minimize or eliminate interference with the environment.

In the context of this scenario, we have a vision / dream for building road infrastructure in future as under:

i) Develop a Road Development Master Plan for an integrated and co-ordinated road infrastructure development in the state.

ii) Raise the average road density to 24 Km/100Sq.Km by the end of the 12\textsuperscript{th} Five Year Plan by raising the total road length to 20,090.00\textsuperscript{5} Km. This will involve construction of roads to the unconnected administrative headquarters and construction of double lane all-weather roads to the district headquarters, among others.

iii) Upgrade and strengthen 80\% (12,160.00\textsuperscript{6} Km) of the existing roads (15,213.78\textsuperscript{1} Km by March 2005) by the end of the 12\textsuperscript{th} Five Year Plan.

iv) Convert 80\% of the existing weak, temporary and semi-permanent bridges to permanent bridges by the end of the 12\textsuperscript{th} Five Year Plan.

v) Construct and improve the porter / mule tracks that connect the far-flung frontier areas where roads cannot reach yet.
vi) Give importance to repair and maintenance of existing roads and bridges that is due to it and keep the assets in a state of good repair all the time. Press for more funds for this important aspect of road infrastructure building.

vii) Construct way-side and terminal facilities on important and arterial roads.

viii) Switch over to eco-friendly technologies, methodologies and materials in execution of road projects.

This vision has been projected in all appropriate fora in the past. As it is, visions and dreams are visions and dreams. They may not be realized to the full extent or may not be realized at all, for there are many constraints, shortage of adequate financial resources being the most important of them all. However, it is always helpful to have a vision ahead. It will help us in avoiding pitfalls and wasting scant resources and guide us in using the available resources in the best possible way to provide maximum benefit to the people.

Conclusion

Much has been done by the Arunachal Pradesh PWD in the field of road infrastructure building in the state so far. The PWD’s contribution has been immense in this noble and great endeavour. But much more is yet to come and much more is yet to be done. It is a continuous process. Needs and demands change with time. And the Arunachal Pradesh PWD is geared to adapt to these changes. Its focus will always be on building roads that provide maximum benefit to the people and that address their real needs. It will be a story of sustainable road infrastructure development.

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Foot Note

Figures at 1, 2, 3, 4, 5 and 6 are subject to final confirmation and revision. The exercise is on.