

Chapter-4

Infrastructure Development

- **Introduction**
- **Financial Sector**
- **Transport and Communication**
- **Social Services and Human Development**
- **Urban Development**
- **Conclusion**
- **Reference**

4.1: Introduction

Fifty years back, except for a small proportion of the elite, the social structure, value system and life style of the people of Bhutan did not differ very much from that of their ancestors around 1500 A. D. Vast majority of the population spent their lives as subsistence farmers, almost totally dependent on the yield of some acres of agricultural land and the adjoining forests where a small surplus was produced, it was bartered. Due to a complete absence of motorable roads, all goods had to be transported on mule tracks. The health infrastructure of the entire country consisted of four hospitals staffed with two trained doctors, a handful of dispensaries and a leper colony. Epidemics sometimes wiped out whole village, reduced the life expectancy to an estimated average of 38 years in 1960¹. Thus, at the end of the 1950s there was only 440 children enrolled in the country's formal education system, consisting of 11 primary schools.

Under the regime of planned development, the economy of Bhutan has recorded substantial progress such as the introduction of an organized money market in place of barter transactions and communal trade, achievement of rapid growth in national and per capita income, development of basic infrastructure, diversification of its economic activities, provision of health and educational facilities for required human capital and so on.

4.2: Financial Sector

Despite issuance of a series of coins in the 1950s², Bhutan's traditional barter economy remained intact even after the inception of Five Year Plans. The economy became fully monetized only after two decades of planned development. Indian currency system has played a vital role for the monetization of the economy of Bhutan. As for example, since the beginning of planned development, much of the development assistance from India used to come into Bhutan in terms of Rupees. Gradually, Indian Rupees become commonly accepted currency of Bhutan due to the absence

of formal Bhutanese currency.

The most important institutional change under the planned development regime is the monetization of its economy through the establishment of commercial bank, a central bank and other non-banking financial institutions. Bhutan's first commercial bank, the Bank of Bhutan was established in 1968 jointly owned by the Royal Government of Bhutan and the State Bank of India with an equity participation of approximately 75:25³. There were 17 branches of this bank all over Bhutan by the end of the Seventh FYP (1992-1997). Ngultrum, the formal Bhutanese currency was first issued in 1974. Since then, both Rupees and Ngultrums circulated in the economy of Bhutan.

With the growth of per capita income as well as its people being more conscious about the security of their lives, the need for life insurance or general insurance schemes were realized by the people. As a result, the Royal Insurance Corporation of Bhutan (RICB) was established in 1979. RICB also managed the Government Employees Provident Fund (EPF) on behalf of the Royal Government. In order to encourage domestic investment, Unit Trust of Bhutan (UTB) was set up in 1980. Bhutan Development Finance Corporation (BDFC) was established in 1988 for the development of small and medium scale agricultural and industrial establishments. The Royal Monetary Authority of Bhutan (RMA), Bhutan's central banking institution was established in 1982 to perform all the functions of a central bank. In 1997, the UTB had been converted to Bhutan National Bank Limited (BNBL), a full-fledged commercial bank.

The Asian Development Bank (ADB) provided supports for the establishment of financial sector of Bhutan. With its support, the country established the Bhutan National Bank, the second commercial bank in Bhutan, BDFC and Royal security Exchange. Recently, ADB is assisting the financial sector through the Financial Sector Intermediation Facility approved in October 1997, consisting of a policy-based loan, a development finance loan, an equity investment in Bhutan National Bank and the technical assistance for upgrading capacity⁴. The bank has

undertaken co-financing activities, particularly in the educational projects. These projects are also co-financed by the World Bank and the UNDP. Careful attention has been taken for successful coordination among these agencies working in the same area.

Efforts have been made by the government for the proliferation of banking activities and banking habits of the people. Under the Sixth Five Year Plan (1987-92), various schemes were introduced for the transfer of monthly wages and salaries of the government and corporate sector employees directly to the saving accounts with the Bank of Bhutan⁵. For the involvement of the rural people in banking sector activities, vigorous professional campaigns were also launched.

Just like other developing countries, Bhutan's money market can be divided into two broad categories—(a) organized sector which functions under the rules and regulations of the RMA and the (b) unorganized sector, beyond the auspices of the RMA. The RMA, Bank of Bhutan, BNBL, RICB, BDFC and EPF are the main components of the organized money market. On the other hand, the un-organized money market of Bhutan consists of friends and relatives of the borrowers including some other sources. Credit facilities from these institutional sources went on an increasing order and at the end of 2007, total 125,500 households had access to credit facilities. Table-4.1 shows the existing credit facilities of Bhutan in 2007.

Table-4.1: Credit Facilities in Bhutan, 2007 (by percent)

Area	Sources of Credit					Don't Know	Total Households
	Banks	BDFC/ RICB	Relative / Friends	Other	No Access		
Urban	2.85	36.0	60.7	28.2	9.4	12.7*	37,800
Rural	25.8	38.4	69.2	23.3	15.0	13.3	87,700
Bhutan	33.9	37.7	66.6	24.8	13.3	13.1	125,500

Source: *Bhutan Living Standard Survey 2007 Report*, National Statistical Bureau, RGOB, Dec. 2007. *Row percentages do not add up to 100 because of multiple responses.

Table-4.1 shows that the two, out of the three households, usually depend on the relatives or friends for loans while five out of seven households have access to the banks. Rural people receive 69.2 percent of total unorganized credit and the share of urban population is only 60.7 percent. Therefore, the role of the unorganized sector in Bhutan is still dominant as like as in other developing countries.

The expansionary monetary policy of the central bank led to the replacement of Rupees with the help of domestic currency of Bhutan⁶. Main function of the RMA was the attainment of monetary stability through price stability. One-to-one peg between Rupees and Ngultrum was maintained by the RMA for the stability in domestic prices. There are two types of credit control policies at the disposal of the Central Bank-quantitative credit control policies and qualitative credit control policies. However, in its monetary policy of late, the RMA recently expressed preference for qualitative instruments of credit control⁷. Figure-4.1 shows growth of money supply in Bhutan for the period 2003-2008.

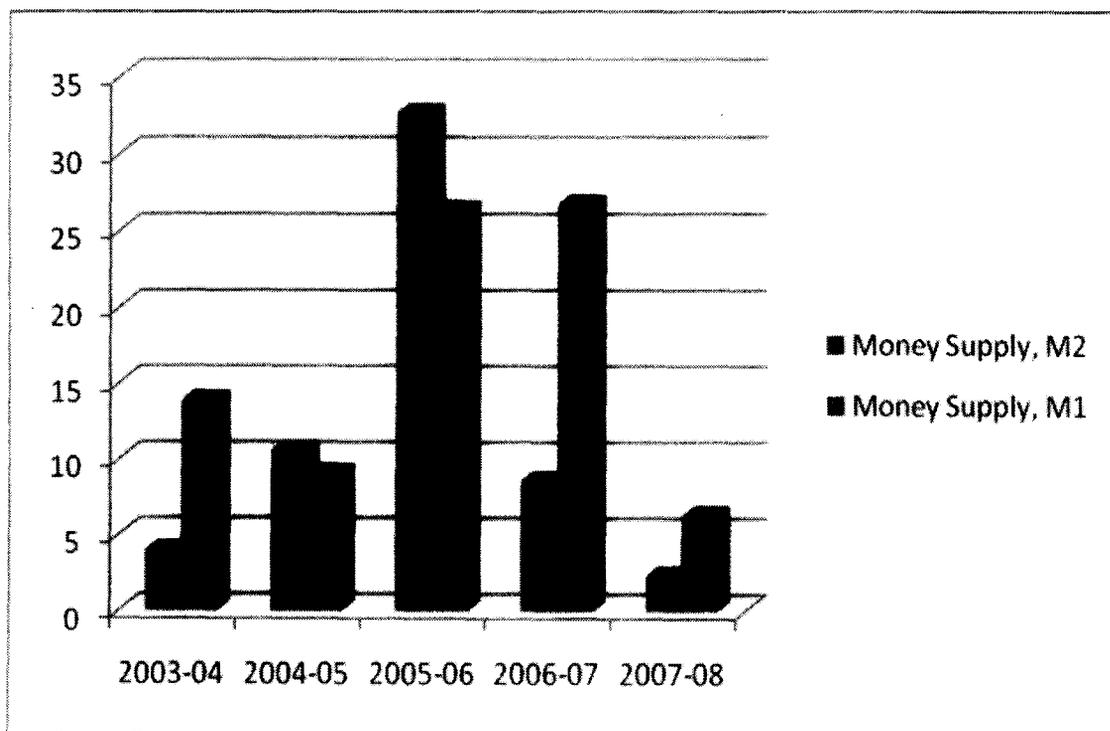


Figure-4.1: Annual Growth rate of Money Supply (in percentage)

Consumer Price Index (CPI) was built up since 1977-78 by the Central Statistical Organization (CSO) of the RGOB, collecting data for retail prices prevailing in the various towns of Bhutan. One interesting property of this price index is that this price index is highly sensitive to the prevailing market prices in India because 97 percent of Bhutan's trade takes place with India and majority of its imports includes consumer goods items.

4.3: Transport and Communication

In order to maintain traditional social order with complete isolation from the outside world, Bhutan rejected several offers of the British for the construction of roads with the financial assistance of the latter. However, on the eve of the introduction of planned economic development, the Royal Government realized the urgent need for the development of transportation and communication infrastructure as the pre-condition for involving the people in the development process and reaching the benefits of development to those people. For the first time, therefore, 'Bhutan Road Project' was commissioned in 1959 with the assistance of Border Roads Organization (BRO) of India; especially for conducting feasibility study of Phuntsholing-Thimphu highway⁸. During the commencement of the First FYP in 1961, it was designated as 'Bhutan Engineering Services (BES)' beginning the construction of 179 km. highway. This road was completed by 1962 and a total of 1770 km. roadways were constructed including 208 km. highways connecting Phuntsholing, Thimphu and Paro. India launched 'Project Dantak' in 1961 for the construction of roads with Indian assistance⁹.

Other donors such as ADB, UNDP and the World Bank also extended their cooperation for the development of road and transport infrastructure. The ADB has financed three projects: a multipurpose loan project in 1983, Roadworks Mechanization Project in 1986 and East-west Highway Maintenance Project in 1993. Institutional strengthening of Bhutan's Public Works Department is another thrust area of the bank. According to

ADB's *Country Operations Business Plan Bhutan (2011-2013)*, a sum of \$19.55 million would be advanced for the Road Network Project III. Netherland, in collaboration with the World Bank, is supporting the construction of environment friendly roads of Bhutan. A preliminary study done by the Netherlands/World Bank EFRC support project in 2004 revealed that initial cost of building roads using environment friendly approach and techniques would be around 30-35 percent higher than that of building roads using traditional approach and techniques.

Road construction was a priority sector activity in all the subsequent Five Year Plans. The 'Bhutan Engineering Services' evolved as the Public Works Department (PWD) in 1979 with more capacity building through the increase in technical manpower and mechanical equipments. Up to the Sixth FYP (1990), a cumulative 2361 km. of roads had been constructed. In the Sixth Plan (1987-92), PWD put priority in the mechanization of construction activities and private sector involvement in the construction of roads. There were 450 construction equipments including 21 road rollers and 22 bull dozers at the beginning of July 2005, the staff strength being 640 including 152 civil engineers and 41 mechanical engineers. There were 4392.5 km. roads constructed all over Bhutan with 2461.33 km. black-topped and 1931.17 km. non-black topped.

In 2000, the PWD has been renamed the Department of Road and came under the purview of Ministry of Works and Human Settlement of the Bhutan Government. It is noteworthy that, there were two parallel agencies for the construction of roads—Department of Road and the BRO known as 'Project Dantak'. While BRO concentrated in the construction of National Highways (NHs), Department of Roads mainly constructed District Roads, Feeder Roads and Urban Roads. Up to June 2005, Department of Road constructed 2344.81km of total roads while Project Dantak constructed 601 km. of roads with 522.4 NHs. The rest of the roads have been constructed by different government departments of the RGDB viz. Dzonkhag administration, Department of Education, Department of Forest and so on. Out of all the 20 districts of Bhutan, Chukha district consist of

highest road length and road network.

Despite all these road connections in the twenty districts of Bhutan, majority of rural people still rely mainly on mule tracks and foot trails along with suspension bridges. 114 suspension bridges have been constructed by the Royal Government up to the Fourth FYP. More suspension bridges and mule tracks were constructed in the subsequent Five Years Plans. At the end of the Ninth FYP in 2007, there were 440 suspension bridges all over Bhutan, most of which are baily bridge, bridges of RTC beam and the composite bridges. A large number of bridges are also at present, under construction. The highway bridges, on the other hand, have been constructed by the BRO. The Swiss assistance focused on the building of suspension and road bridges, while Indian and Japanese assistance concentrated in road maintenance and construction¹⁰.

With the development of motorable roads, traditional means of transportation viz. back-packing horses, goats, yaks, sheeps and oxen were replaced by the motor vehicles. Towards the end of the Ninth FYP in 2007, there were 33,241 vehicles, light vehicles consisting of 53 percent. Table-4.2 categorically shows the number of vehicles of Bhutan in 2006

Table-4.2: Year-wise Growth of Vehicles by Type, 2000-2006

Years	Total				
	Buses & Trucks	Light Vehicles	Two Wheelers	Taxis	Others
2000	2938	7337	7763	770	655
2001	3560	8777	8165	1188	804
2002	3517	10071	8371	1423	1048
2003	3799	11428	7507	1560	709
2004	3883	13359	6583	1785	1130
2005	4352	15374	7138	2050	1000
2006	4547	17599	7930	056	1109
Percent	14	53	24	3	100

Source: Ministry of Information and Communications, RGOB, July, 2007.

There were frequent policy changes of the Royal Government

regarding the transport sector. In 1976, BGTS lost its monopoly on freight services with the establishment of private trucker's syndicate. Privatization of passenger services began in 1985 on a pilot basis and was fully privatized in 1991¹¹. The BGTS was transformed to Road Safety and Transport Authority (RSTA) after its privatization. At present, all the activities relating to motor vehicles have been integrated under the RSTA from the part of the Bhutan government.

Druk Air, the only government-owned air service operates in Bhutan since 1983. Two disused air fields were built by the BRO as early as in 1965-one at Paro and the other at Yangphula, Tashigang. In 1983, the Druk Air Corporation (DAC) was established and started operation only with an 18 seater Dornier Aircraft. During the fifth FYP (1981-1987), recruitment and training of air personnel, promotion of airport infrastructure etc. were undertaken. During the next FYP (1987-1992), there were two Dornier Aircrafts and a BAe 80 seater jet. A high capacity Airbus A319 began its operation since October 2004. At present, Bhutan has its international air connections with India, Nepal, Bangladesh, Thailand and Myanmar. Total Druk Air passengers flow at Paro airport was 76,254 and earned Nu.1181.69 million of revenue in the year 2006. In addition to the Druk Air, there are 89 heliports throughout the country, all under the control of Royal Bhutan Army¹². Department of Civil Aviation was established in January 1986 which is responsible for all service-providing, regulatory and monitoring activities of Druk Air. It has now a technical section and over 132 employees. The ADB would advance a total grant assistance of \$ 9.65 million for domestic airport development of Bhutan during 2011-2013 period.

Development of communication infrastructure is a very recent phenomenon in Bhutan, although postal and telegram services began as early as in 1962 under the first FYP (1961-1966). Bhutan's first post office was opened at Phutsholing in 1962 followed by two more - one at Thimphu and the other at Paro. Postal stamps were also issued in the same year¹³. By the end of the Second FYP in 1971, there was a network of 33 post

offices, a philatelic bureau and seven telephone exchanges possessing 18 jeeps and 31 trained Post Masters. Postal and telegraph departments were enriched with 86 post offices, 25 branch offices, 44 civil wireless station and 8 telegraph office in 1990. Postal operations were corporatized on the 1st October, 1996 with the trading name 'Bhutan Post'. In 2006, Bhutan's postal network consisted of 90 outlets including two General Post offices (GPOs), 43 post offices, 3 Agency Post Offices and 42 Community Mail Offices holding 130 letter boxes and 2420 post office boxes, average letter volume ranging from 5,000 to 6,000 per day. It is to be noted that recently developed electronic devices such as telephone, e-mail, fax, internet etc. are replacing the postal service activities of Bhutan.

The state of telecommunication changed after the establishment of the domestic telecom network of Bhutan. The Telecom Master Plan was developed with financial and technical assistance of the UNDP and the International Telecom Union in 1989. The Government of Japan funded the implementation of the Master Plan in three phases between 1992 and 1999. During the first phase of the project, a 34 mbps backbone digital microwave radio link was established between Thimphu in the west and Trashigang in the east. Installation and commissioning of digital telecom systems in other districts and towns were fulfilled in subsequent phases.

The first telephone network in Bhutan was established in 1963 by the BRO. Fully digital national telecommunication network interconnecting all the twenty districts and major towns was established in 1998. Bhutan Telecom Limited (BTL) provides both telephone and mobile phone services. Bhutan's first mobile service was launched on 11 November, 2003¹⁴. At the end of December 2006, there were 33,592 fixed telephone customers and 78, 185 mobile customers. BTL is also the incumbent operator of internet and other value added IT services. However, with the ongoing liberalization policy of the government, two new internet service providers were licensed in 2004 and a second mobile operator has also been licensed in 2006. Bhutan IT business has grown very rapidly in the new millennium. In 2006, there were about 45 firms dealing in IT business and nineteen IT

training institutes were imparting their trainings. On the other hand, Ministry of Trade and Industry issued 35 licenses for internet cafés.

Mass media in Bhutan is also a recent development and comprises Kuensel, the national newspaper published since 1965, public radio service, TV and cinema. Department of Information and Media was established in 2003. In the early 2006, two private news papers 'Bhutan Times' and 'Bhutan Observer' were also licensed. Bhutan Broadcasting Service (BBS) which had started as a radio station in 1973 run by a group of Bhutanese youths now provides its radio and TV services. It was corporatized in 1992 according to the Royal Decree. In 1999, BBS introduced Bhutan's first live telecast and by the end of 2005, its FM radio service covered all the 20 districts of Bhutan. BBS provided 96 hrs of TV programming in a week in 2006. Three additional FM radio licenses have been issued by the regulator (Bhutan Infocom and Media Authority) viz. Kuzu FM 90, Radio Valley and Chenzing Media. Radio Valley broadcasts a host of interactive programmes from 8.00 a.m. to 9.30 p.m. Cable television was formally introduced in the country along with the internet in 1999. There are about 60 cable TV operators in all 20 districts and other populated areas of Bhutan. Very recently, the country is developing its audio-visual and film industries. Bhutan is also growing in the field of sports and gymnastics. The country has joined the International Football Association (FIFA) and participated in the Sydney Olympics¹⁵.

4.4: Urban Development

The process of urbanization and the development of urban amenities began with the growth of urban population. In the First Five Year Plan (1961-66), Bhutan Engineering Services (BES) had undertaken construction of some residential and non-residential buildings along with urban roads and electrification. In the Second Five Year Plan (1966-71), BES constructed 30 miles of roads and 12 rest-houses in the important urban areas at various places of Bhutan. Under this plan, Rs. 21, 00,000 had been spent for the water supply schemes in nine towns. In the earlier

plans, diesel generators were installed for urban electrification due to the lack of domestic electricity supply. Some of the other cities were also electrified with imported electricity from adjacent power grids of India. A sum of Rs. 200 lakhs were spent for the development of Thimphu city during Third Five Year Plan (1971-76). As in 2006, there were 54 declared urban centres all over Bhutan with Thimphu and Phuntsholing having corporations and all other towns being municipalities. Although there is no clearly defined distinction between rural and urban settlements, eighth FYP (1997-2002) recognized 44 settlements with population ranging from 500 to over 30,000 as urban settlements while rural settlements varied from single homestead to a cluster of 30 to 40 dwellings and village sizes varying from 2 to 100 houses¹⁶.

The donor countries are extending substantial assistance for the development of urban centres by providing urban facilities like urban sanitation, proper drainage and management of solid wastes. The ADB and UNDP are two major donors in this sub-sector. *Bhutan: Urban Infrastructure Development Project* of the Asian Development Bank would improve urban infrastructure, planning, and management, enhance urban livelihoods and increase capacity for administering urban infrastructure supply and maintenance works¹⁷. According to Danida's Strategy for Development Cooperation in Bhutan (2008 to 2013), Danish assistance will be rendered mainly in three key areas, one of which is urban development.

According to the Population and Housing Census of 2005, Bhutan's total population was 634,982 consisting of 196,111 urban population which is 30.9 percent of total population. Of this urban population, 53.8 percent are males while 46.2 percent are females. The highest percentage of urban population lived only in Thimphu city while least populated urban centre is Gasa with only 402 persons¹⁸. In 2006, out of 38,311 urban households, 50 percent of households lived in 2-3 roomed houses. Total stock of government housing was 2,835 as has been shown in the Table-4.3.

**Table-4.3: Government Housing Stock under District Administrations
2005**

Districts	Quarters Type (Class)					Total
	I	II	III	IV	Others	
Bumthang			35	5		40
Chhukha	6	29	108	11		154
Dagana		13	40	19		72
Gasa					7	7
Haa	2	3	18			23
Lhuentse		24	29	35		88
Monggar	4	23	101	10	1	139
Paro	9	32	41	1		83
Pema Gatshel		3	32			35
Punakha	1	6	68	21		96
S. Jongkhar	2	8	79	54	1	144
Samtse		1	7	5		33
Sarpang		5	59	25		89
Trashigang	2	9	118	57	42	228
Trongsa	2	5	38	13		58
Tsirang		3	44	18		65
Thimphu	4	14	52	2		72
Trashi Yangtse	1	8	10	7		26
W. Phodrang	1	14	57	19		91
Zhemgang	1	2	47	8	2	60
Total	100	245	1969	461	53	2835*

Source: Annual Information Bulletin, Ministry of Works and Human Settlements, RGOB, 2006. * Final-row total does not add up to total because 7 I-S category housing has not been shown.

A large number of government housing is also under construction. In addition to these government houses, there were numerous private houses for which statistical data are not available. At present, a package of urban facilities comprising of water supply, public toilets, street lights, children parks, solid waste management system, potable water supply, cable T.V. connections, cinema and internet facilities are available in the urban areas. In 2006, there were 6 public toilets and two children parks only in the Thimphu city.

Rural infrastructure has also been strengthened with the help of road connections, water supply as well as electrification. Although, rural electrification began of late due to the lack of the supply of domestic electricity and manpower shortages, up to the end of the Fourth FYP

(1992-97), 97 villages were electrified. At the end of the Seventh FYP, electrification of 107 villages was undertaken from internal resources while 47 villages were undertaken with the help of foreign resources. For the time being, 1760 rural water supply schemes were in operation, 325 new schemes under the seventh FYP (1992-97). During the period 1987-1995, rural water supply coverage increased from 31 percent to 58 percent¹⁹.

4.5: Social Services and Human Development

Bhutan's traditional education system was confined to the Buddhist religious studies inside the monastery premises. Modern system of education in Bhutan commenced only with the implementation of planned development. Despite the remarkable achievement in the education front, progress in health and sanitation facilities is comparatively low. In the initial phases of planned development, Indian assistance was the principal funding source for the development of social services. However recently, other donors like the ADB, UNDP and the UNICEF concentrated in the social sector front. Due to the development of health care and sanitation facilities, all the health related indicators like life expectancy, infant mortality and maternal mortality have improved. A broader elaboration of service sector has been made in chapter-5 of this thesis.

4.6: Conclusion

Prevalence of barter system throughout the medieval period of Bhutan was gradually replaced by the monetary institutions. Monetary activities have been substantially diversified for proper implementation of its monetary policies. Under the infrastructural front, all the 20 districts of Bhutan have been connected with motorable roads and motor vehicles. Backpacking of horses for transportation purposes has been replaced by this modern transportation services. Modern electronic communication services like internet, cable TV and cinema are very recent achievements. The most important infra-structural diversification is observed in the education and health related activities. Instead of only religious education within the monastery premises, Bhutan has been able to develop a modern

education system including technical education. Basic health facilities have also been proliferated. As a result, literacy rate has increased.

Reference

1. Priesner, S. (1999): 'Gross National Happiness–Bhutan's Vision of Development and its Challenges', Discussion Paper, Centre for Bhutan Studies, Bhutan.
2. Rhodes, Nicholas (1999): 'The Monetisation of Bhutan', *Journal of Bhutan Studies*, Centre for Bhutan studies, Thimphu, Bhutan, vol. 2, No. 2, Winter.
3. World Bank (1984): *Development in a Himalayan Kingdom*, Washington D. C., USA.
4. Asian Development Bank (1998): *Country Assistance plan (CAP): Bhutan (1999-2001)*, October.
5. Sixth FYP (1987–1992): *Main Document*, Planning Commission, Royal Government of Bhutan, Bhutan.
6. Seventh Five-Year Plan (1992-1997): *Main Document*, Planning Commission, Royal Government of Bhutan, Bhutan.
7. Royal Monetary Authority of Bhutan (2009): *Annual Report 2007/08*, RGOB, January.
8. Department of Roads (2005): *Department of Roads at a Glance*, Ministry of Works and Human Settlement, RGOB, October.
9. Choudhary, L. K. (2005): 'Indo-Bhutan Relationship: A Unique Example of Bilateral Friendship in South Asia', *India Quarterly*, Indian Council of World Affairs, Vol. LXI, No. 2, April-June, pp. 213-229.
10. Helvetas (Swiss Agency for Development and Cooperation) (1998): *Bhutan: Country Programme (1998-2002)*, Zurich/Thimpu, February 25.
11. Ibid 5.
12. Ministry of Information & Communication (2007): *Information, Communications, and Transport Sector in Bhutan: A Special Report*, RGOB, July (<http://search.conduit.com/> 18.05.2009).
13. Ibid 3.
14. Ibid 12.
15. Ghosh, P. S. (2006): 'Bhutan and India: Partners in Progress' in Thomas, C. Jasua (ed.) *Engagement and Development: India's North-east and Neighbouring Countries*, Akanshah Publishing House, New Delhi, p. 105.
16. Eighth Five-Year Plan (2002-2007): *Main Document*, Planning Commission, Royal Government of Bhutan, Bhutan.
17. Asian Development Bank (2006): *Bhutan: Urban Infrastructure Development Project*, Resettlement Planning Document, Project Number: ADB 2258 BHU, June.
18. Ministry of Works & Human Settlement 2006): *Annual Information Bulletin*, Policy and Planning Division, RGOB.
19. Seventh Five-Year Plan (1992-1997): *Main Document*, Planning Commission, Royal Government of Bhutan, Bhutan.