

GYANA

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Diocesan Society Of Education's

ROSARY COLLEGE OF COMMERCE & ARTS

(Accredited by **NAAC** with Grade B+)

Navelim , Salcete - Goa. 403 707

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(Approved by the Government of Goa & Affiliated to Goa University)

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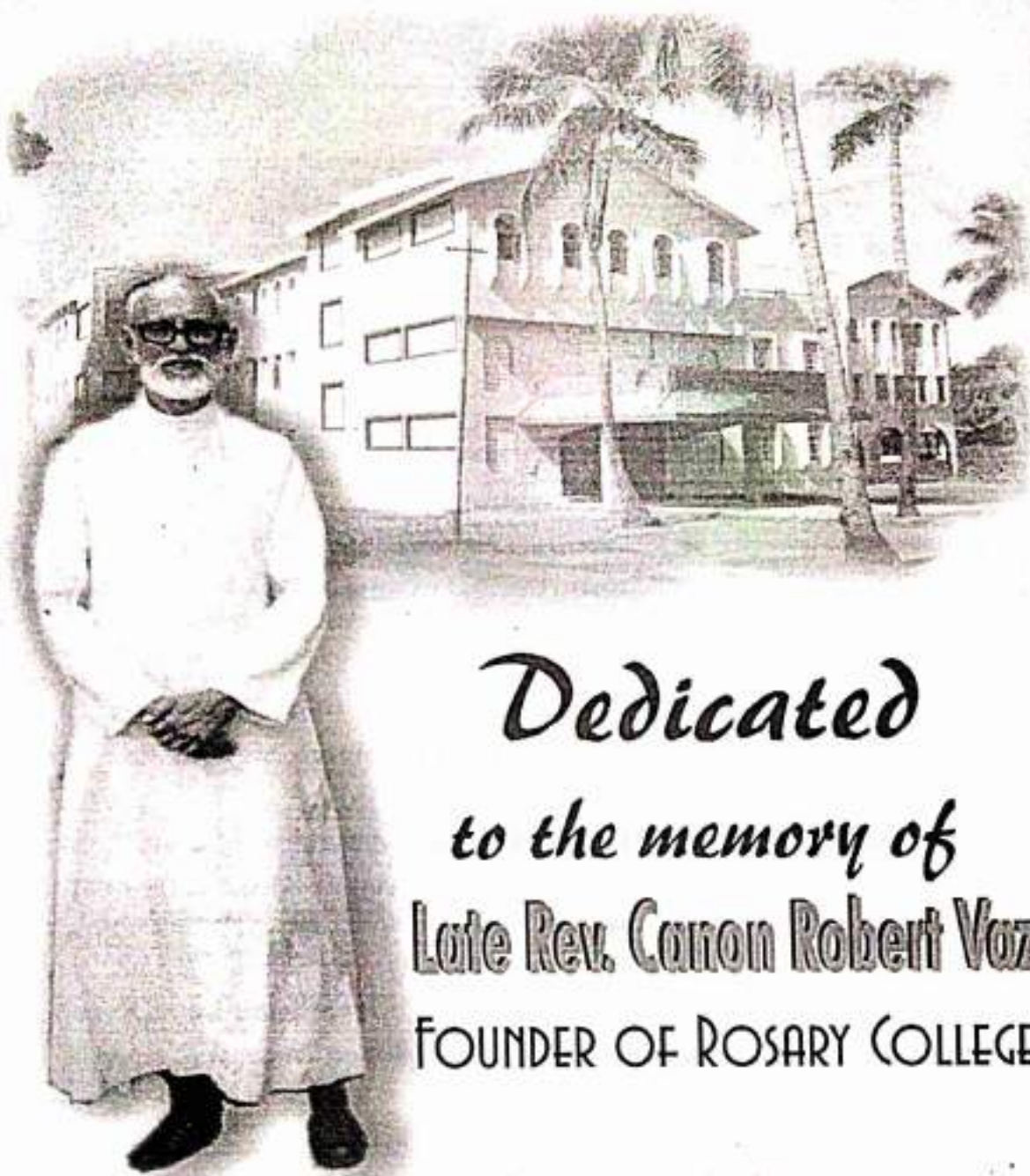
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Dedicated
to the memory of
Late Rev. Canon Robert Voz
FOUNDER OF ROSARY COLLEGE

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FROM EDITOR'S DESK

Research is said to be the creative hallmark of higher education. In today's knowledge society, research plays an important role. The socio development too is dominated by knowledge. Application of knowledge is the key factor for us on this planet in this 21st century.

Institutes of higher learning, besides the teaching function, lay focus on research. According to I.T. Ker (1976), "to discover and to teach are two distinct functions; they are also distinct gifts, and are not commonly found united in the same person".

In an attempt to promote research activity among our teachers and, at the same time, to extend to them a platform to document innovations and findings, the Rosary college created a Research and Development Cell, and I am glad to place on record that GYANA - an interdisciplinary research journal - is the tangible fruit of this cell. The title itself is very suggestive and illustrative. GYANA, taken from the Sanskrit language, spells out the objective of the cell to promote research to be undertaken and carried out by our multi-disciplinary faculty.

The University education system does not provide much scope for research. It gives priority to teaching. GYANA expresses concretely our commitment to research involving our faculties and even students.

The first issue of GYANA features contributions on subjects ranging from economics, psychology, commerce, computer technology to mathematics, management and religion. It is with great joy that we place GYANA 2006 in the hands of our esteemed readers and admirers of Rosary College with a hope that the future editions will excel the present one.

Dr. (Fr.) Walter de Sa
Principal

The Church in Goa and Social Ministry

Dr. (Fr.) Walter de Sa.

This article features the interventions and the involvement of the Church in the issues affecting the needy and the marginalized in Goa. It also describes the welfare programmes undertaken by the Church and other Church related organizations.

The Church in Goa, at the Regional Seminar held in 1968, reviewed her socio-economic welfare activities and acknowledged that, although much had not been done, she had made valuable contribution to the welfare of the people in the social and economic fields through parishes, religious congregations and lay organizations that were instrumental in meeting the pressing needs of the people within her limited means and possibilities and, thus, attaining social and economic uplift of the backward and the neglected. In villages as well as in towns, several religious congregations of men and women set up not only schools and other educational institutes but also social welfare institutions. The lay organizations like Society of St. Vincent de Paul and Legion of Mary that operate in almost every parish, have brought relief to the poor and the needy (*Goa Regional Seminar 1968:6*).

The various types of works undertaken under the supervision and guidance of the Church in Goa can be classified under four categories.

1. **Charitable Works**

These are further subdivided into institutional and non-institutional types. Under the institutional type there are homes for the aged, orphanages, homes for the fallen women, crèches, centre for the physically handicapped and mentally retarded children, etc. Charitable work of non-institutional type consists mainly of relief work like monetary aid and distribution of food grains, milk, clothing and medicines to the needy.

2. **Education**

Through schools and colleges the Church exercised the apostolate of service to the people in general, and to the poor and the marginalized, in particular.

3. **Health care**

The religious congregations have established hospitals, dispensaries and health centers, mobile clinics in rural areas where the poor and the needy are given free medical aid.

4. **Socio-Economic Activities:**
- a) **Housing:** The Church has distributed some of her land to house families. Thirty poor families were provided land at Baida, Chinchinim, to build houses.
 - b) **Agricultural Development:** Some religious congregations have undertaken bigger agricultural projects for the production of rice, sugar-cane and vegetables. Bore wells have been dug. Technical training has been imparted to young men in carpentry; women have been given training in handicraft and tailoring. The two-fold aim of training was:
 - i. To provide skills for men and women to take up jobs, and
 - ii. To solve the existing problem of unemployment (*Goa Regional Seminar 1968:7-8*). Table 1 demonstrates the major areas of service rendered by the Church in Goa.

Table 1

Church Sponsored Institutions in Goa		
Spheres/Institutions		Number
1. Education		
a. Primary Schools		13
b. Middle Schools		6
c. High Schools		106
d. Higher Secondary Schools		13
e. Colleges		5
2. Health		
a. Hospitals		6
b. Dispensaries		5
3. Social Welfare		
a. Technical Institutes		7
b. Hostels and Boarding Houses		5
c. Orphanages		9
d. Rehabilitation Centres		7
e. Homes for Aged, Destitutes		30

Source: *Archdiocese of Goa and Daman Directory*. Panjim: Patriarchal Curia, 2000: 243-60.

THE CHURCH INTERVENTIONS

The Church in Goa has shown greater involvement in the issues affecting the needy and the marginalized not only from Goa but also from other States. It has always manifested concern for, and been interested in, social problems and peace based on justice.

1. *Ramponkars' Issue*

In 1974 the Church intervened in the vexed problem of the traditional *ramponkars* (fishermen) versus the mechanized trawler and purseiner owners, and supported the just cause of *ramponkars* engaged in traditional fishing activities on which their families depended. In a spirit of solidarity, several priests and nuns participated in the *ramponkars'* agitation. The Church pleaded that an exclusive free zone of 5 Kms. from the coast be reserved to the *ramponkars* (CP-Cr No. 2/78, 30.1.1978; CP-Cr No. 94/80, 27.5.1980).

Fr. Bras Faleiro, a Jesuit based in Goa, who personally participated in the struggle of the *ramponkars*, testifies to the involvement of the Church in this vital issue. He writes: 'the official Church which was silent upto now, came forward openly pleading for justice toward the suffering fishermen. It was for the first time that the Church in recent years had come out openly and officially against the adamant attitude of the Government and opted for justice for the voiceless poor' (1980:51-52).

2. *Relief and Rehabilitation*

The North-Western region of India as well as the southern States are constantly prone to natural calamities such as floods, inundations, droughts and earthquakes that have caused a great havoc to human life, property and livestock. On such situations the Church in Goa came forward spontaneously to help the victims, and, in a spirit of solidarity and sympathy with the suffering victims, the Church extended generously financial assistance. Just to cite a few instances: for Maharashtra earthquake fund Rs. 6,20,996; Andra Pradesh Cyclone Fund Rs. 3,66,947; Kargil Fund Rs. 6,56,000; Orissa Cyclone Fund ; Rs. 3,04,223.

The Church also promotes annually the campaign against hunger and disease by raising money for the needy and the poor to provide them at least with the basic human needs of food, clothing and medical care (CP-Cr No.3/75,

12.2.1975). The amount collected for the above purpose is as follows in 1993 Rs. 39,309, 1994 Rs. 45,325; 1995 Rs. 49,790; 1996 Rs. 67,240; 1997 Rs. 66,115; 1998 Rs. 40,012; 1999 Rs. 14,605; 2000 Rs. 46,874.

3. Konkan Railway Realignment

The Church in Goa got herself involved in the people's struggle against Konkan Railway Route causing a major ecological disaster and seriously disrupting people's lives and posing an imminent threat to public health, to the livelihood and to the very survival of the population in the affected areas. Thus, priests, nuns and lay Catholics participated in various forms of protest and extended full support to the campaign for realignment (CP-Cr No. 55/93, 1.4:1993).

4. Anti-Pollution Campaign Against Zuari Agro Chemicals

The Zuari Agro Chemicals factory, situated at Zuarinagar in Vasco da Gama, three months after its operations in 1973, polluted Goa's coastal waters due to arsenic poisoning causing, thus, mass fish mortality, destroying coconut and mango plantation, polluting springs, rivulets and drinking water from these wells developed rashes and boils all over the body. Given the seriousness of the situation, the Church in Goa backed up the Anti-Pollution Campaign in 1974 to fight the menace of pollution threatening people's lives (da Gama 1987-22)

5. Nylon 6,6 Project

It is not too long ago that the Church in Goa lent support to people's agitation against a Nylon 6,6 polluting factory to be set up at Keri in Ponda taluka with an appeal to the Government authorities to 'heed to the just demands of the oppressed people and bring the crisis to a satisfactory solution' as stated by the Church spokesperson (Fr. J. Loiola Pereira) in his press statement dated 25th January, 1995.

6. Meta Strips Plant

Another anti-environmental project named Meta Strips Ltd (MSL) in Velsao in Salcete taluka drew mass demonstration by the people with the participation of the Church, who raised her voice against the implementation of this project (Dias 2000:343).

7. Problem of Alcoholism

Through the Diocesan Pastoral Council the Church came vehemently

against the steady growth of the social evil of alcoholism seriously affecting innumerable families in Goa by pleading to the State Government that advertising of alcoholic drinks be curbed, and licenses for new bars and liquor shops be not issued. The Church also ruled prohibiting advertising of alcoholic beverages at functions organized by Catholic institutions (*Press Statement Diocesan Pastoral Council, 27th July, 1997*).

8. Fund for the Relief of the Poor

On the occasion of the solemn exposition of the relics of St. Francis Xavier held in 1984, the Church Authorities in Goa ordered a fund for the relief of the poor to be established in each parish (*Pastoral Letter in Renewal 14(16), August 15, 1984:306*)

9. Service Centre for Social Action

Social concern is an integral dimension of Church's mission. To give it a concrete shape, and to encourage group projects that will demonstrate visibly the Church's social concern for Goa, an attempt was made to set up Service Centre for Social Action in 1976. The Church's contribution to the development, the participation of the laity in formulating the role of the Church in the development of Goa, and collaboration with other organizations to bring about socio-economic development of Goa constituted the main thrust of the Centre (CP-Cr No. 123/76, 28:12:1976).

10. Justice Sunday

The Church of Goa, in collaboration with the Catholic Bishops' Conference in India, observes every year 'Justice Sunday' following Independence Day, thus attaching to it special significance in the context of India's freedom. Its main aim is to conscientise people about, and to launch protest against, the injustices meted out to the marginalized, particularly the Christians of scheduled caste origin (CP-Cr No. 129/87, 4.8.1987)

SOCIAL CONCERNS

1. Domestic Workers' Movement

The problems of domestic workers, the most exploited and unorganized has attracted the attention not only of the non-governmental organizations (NGOs) but also of the Church Authorities which have set up an organization known as National Domestic Workers' Movement (NDWM). Almost 90

percent of them are *adivasi* women and girls, generally illiterate and poor, underpaid, forced to work for indefinite hours and subjected to physical violence and sexual harassment (*Domestic Workers Link* December, 1996, Vol.5. No.3).

In several states like Himachal Pradesh, New Delhi, Uttar Pradesh, Bihar, Andhra Pradesh, Maharashtra, Goa and Karnataka, the Domestic Workers Movement has spearheaded the cause of the domestic workers to the extent that the Government of Maharashtra approved the five point code of conduct for employers in Mumbai, Thane, Pune and Nagpur (*Domestic Workers Link* March 2000, Vol.9. No. 1:3).

Its unit is also established in Goa. The full-time or live-in domestic workers are found concentrated in major towns like Vasco, Margao, Panjim and Mapusa. Part-time domestic workers are found living in the slums of Chimbel, Baina and Mangor. Issues such as fixing of wages and of hours of work, non-payment of wages and a weekly off are taken up by the unit with the concerned employers.

2. **Prison Ministry**

The Church in Goa has undertaken the responsibility of rehabilitating the prisoners from different jails in Goa through the Prison Ministry that comprises monthly visits to the inmates in Aguada (Singerim) and Sada (Bambolim). The prisoners are offered moral guidance and spiritual orientation through counseling, talks and sessions.

The prisoners look forward to the visits for they want to be listened to and understood since in the jails they suffer both mentally and physically as well. They are taunted with hatred and rejection. They feel themselves sunk in the sea of frustration. As such, they turn out to be more hardened and hard core criminals. On listening to their woes and grievances, a hope for better is instilled in them, and encouragement and consolation provided.

At Sada and Aguada jails short courses like personality development, value building programme for the inmates are being conducted. Yoga and Vipassana sessions, Inter-Religious Prayer Services, counseling and group work, health and hygiene sessions are also held. Renewal programmes like respect for life, truth, non-stealing and non-addiction, etc, are on the cards.

3. Maternal and Child Health Programme

The above programme includes regular medical check-up of children, and instructions for mothers with immediate referral for early medical intervention and treatment.

4. St. Bridget's Vocational Training Institute

In this Institute young women (poor and drop-outs) are imparted skills for self-employment through home science specializations in subjects like tailoring, embroidery, cookery, flower-making, gardening and first aid.

5. Society of St. Vincent de Paul

The Society of St. Vincent de Paul has espoused the cause of the poor and the needy in Goa. There are 76 conferences of this Society spread all over Goa. It has helped young boys and girls in taking courses in catering and food production, tailoring, embroidery, and diesel mechanic by sponsoring their fees. In Saligao, Margao, Benaolim, Curtorim and Chinchinim, the Society has been conducting classes in embroidery and flower making for girls, and in tailoring for boys and girls. After the completion of their courses, it also helps them in finding jobs (*Vincentian Bulletin* 1996: 32, 41, 50, 55, 60 and 97).

The members of the Society visit the sick and the infirm at home and in the hospitals. The society runs medical clinics in Margao, Navelim and Nuvem. It helps poor sick people to meet expenses on surgery and hospitalization (*Ibid.*:53, 56, 65 and 69). A reformation centre for alcoholics and drug addicts is also set up by the Society in Margao (See *Souvenir Holy Spirit Conference of the Society of St. Vincent de Paul Diamond Jubilee, 1930-1990*). The Society owns an ambulance for the use of the poor and the sick who need to be transported to hospitals. It has been of great assistance to people, particularly during emergencies and accidents (*Vincentian Bulletin* 1996:13).

Another project of the Society is lending a helping hand to the needy and the poor to improve their living conditions. It provides them with bamboos, palm leaves, tiles, stones, doors, windows, etc. It has also undertaken the electric wiring of houses of some poor families (*Vincentian Bulletin* 1996:20, 32, 59 and 70).

The Society provides monetary help to poor families. In 1994-95, it spent Rs. 64,342 for 20 families in Aldona; Rs. 54,090 for 39 families in Margao; Rs. 43,200 for 24 families in Candolim (Ibid:24, 40 and 74).

The Society has opened a home for the aged and destitutes known as 'Arc of Hope' in Candolim. It can accommodate 30 inmates (Ibid:25).

Another area where the Society has contributed in a significant manner is the education of the poor children. For instance, the poor school going children are provided with uniforms, text books, note books, etc. In Verna it runs St. Vincent de Paul K.G. school for children from the poorest families of the village. Likewise, in Velsao it also runs a K.G. school for poor children. In Chondravaddo (Margao), it opened a primary school for children from backward classes. In another ward of Margao, namely, in Ambagim, the Society runs a Night School where the illiterate youth and the old are imparted literacy (Ibid: 41, 67. *Souvenir Holy Spirit Conference of the Society of St. Vincent de Paul Diamond Jubilee, 1930-1990*).

The apostolate of good literature is another area in which the Society has taken a lead. 'Ozanam Library' in Margao, and 'St. Vincent de Paul Library' in Verna have been opened by the Society (*Vincentian Bulletin* 1996:40 and 67).

Some of the members of the Society are professionals like doctors, advocates, engineers, etc., who have come forward to render free of charge their expertise and professional services to the poor and the needy. In Margao and Navelim, the Society is running free Legal Aid Cells (Ibid:40 and 54).

6. *Obra de Protecção à Mulher* (OPM) (Service for the Protection of Women)

On 11th April 1947, a special institution named *Obra de Protecção à Mulher* (OPM) (Service for the protection of women) was set up in Birondem, Valpoi (de Rosa 1949:5). Initially, a private undertaking of Fr. Amaro Pinto Lobo, it soon was raised to the status of a Diocesan institution (*Boletim Eclesiastico da Arquidiocese de Goa*, Abril de 1948, 6(10):114). Its main objectives were to give shelter to women and girls coming with their wares for sales from villages to cities, to employ them as domestic workers, and to educate and prevent them against the dangers of the city life. It was also meant to curb the influence of the *Cudd* (room), a place of accommodation without hygiene and morality, where men and women mixed about freely, it was also meant to

do away with dances, and other festivals promoted by the house-workers who gave in to immorality, besides squandering their savings and causing detriment to their works (*Boletim Eclesiastico da Arquidiocese de Goa*, Janeiro de 1948, 6(7):210).

The OPM had its branches in other parts of Goa, namely in Mapusa, Margao, Panjim, and Vasco da Gama. It comprised four distinct sections: (i) *Abrigo* (Shelter) to house women and girls found involved in bad company and gone astray, or with the risk of going astray; (II) *Maternidade* (Maternity) to shelter girls and women found to be in the family state, an embarrassing and humiliating situation that would bring dishonour to the family and cause a great scandal in the village; (III) *Orfanato* (Orphanage) for children of three years of age and above, and (iv) Creche for babies born out of wedlock (*Boletim Eclesiastico da Arquidiocese de Goa*, Novembro de 1947, 6(5):135 and 152). It is interesting to note that some Hindu women also joined hands with OPM and came forward to help their less fortunate sisters (*Boletim Eclesiastico da Arquidiocese de Goa*, Maio de 1949, 7(11):330). Today, OPM is situated in Nachinola (Bardez taluka).

7. Legion of Mary

Another Catholic institution known as Legion of Mary is also engaged in social welfare services towards the needy and the poor. Its members faithfully visit hospitals, homes for the aged, jails, and even try to bring about reconciliation in the broken families (Silva 1957:102).

All the manifold welfare programmes undertaken by the Church and the Church-inspired organizations have been described above. The areas of concern wherein the Church in Goa is involved are confined to health, education and social welfare. This is Church's contribution towards setting up a new social order i.e. a just and egalitarian society based on human dignity. Thus, it becomes clear that the Church not only enunciates social doctrine but also demonstrates in concrete action her concern and commitment to the cause of the poor and the marginalized.

References

1. Archdiocese of Goa and Daman Directory. 2000. Panjim: Patriarchal Curia.
2. *Boletim Eclesiastico da Arquidiocese de Goa*. Serie III Ano VI. Novembro de 1947. No 5
3. *Boletim Eclesiastico da Arquidiocese de Goa*. Serie III Ano VI. Janeiro de 1948. No 7
4. *Boletim Eclesiastico da Arquidiocese de Goa*. Serie III Ano VI. Abril de 1948. No 10
5. *Boletim Eclesiastico da Arquidiocese de Goa*. Serie III Ano VII. Maio de 1945. No 11
6. *Circular CP-Cr No 123/76*, 28.12.1976. Panjim: Paço Patriarcal.
7. *Circular CP-Cr No 2/78*, 30.1.1978. Panjim: Paço Patriarcal.
8. *Circular CP-Cr No 94/80*, 27.5.1980. Panjim: Paço Patriarcal.
9. *Circular CP-Cr No 129/87*, 4.8.1987. Panjim: Paço Patriarcal.
10. *Circular CP-Cr No 55/93*, 1.4.1993. Panjim: Paço Patriarcal
11. da Gama, Carlos E. 1987. *Hacia Una Evangelizacion Liberadora en Goa* (in Spanish) (Towards a Liberating Evangelisation in Goa). Thesis for Licenciante. Pontifical University of Salamanca. Madrid.
12. Dias, Saturnino. 2000. 'Issues Behind the Controversial Meta Strips Plant in Goa', *Renewal*, 29(15): 342-44.
13. *Domestic Workers' Link*. December 1996, 5(3). Bombay: Domestic Workers' Movement.
14. *Domestic Workers' Link*. March 2000, 9(1). Bombay: Domestic Workers' Movement.
15. Faleiro, Braz. 1980. 'Ramponkar's Struggle for Justice and Its Relationship to Faith', *Religion and Society*, 27(4): 51-58.
- Goa Regional Seminar. 1968, Pilar: The Organising Committee of the Goa Seminar.
16. Silva, Pe. Assunção. 1957. 'Principais Obras Sociais de Goa e a necessidade da sua coordenação', *Boletim Eclesiastico da Arquidiocese de Goa*. Setembro de 1957, Serie II, 16(3).
17. *Souvenir Holy Spirit Conference of the Society of St. Vincent de Paul*. Diamond Jubilee. 1930-1990. Margao Goa.
18. *Vincential Bulletin*. 1996. Society of St. Vincent de Paul. Goa Central Council.

SECOND GENERATION REFORMS VIS-À-VIS THE FIRST GENERATION REFORMS WITH SPECIAL REFERENCE TO FISCAL REFORMS

*Mr. Savio Falleiro
Department of Economics*

1990/91 painted a very grim picture of India. India was racing towards her very nadir economically and otherwise too. Planners, economists et al had to transform her from the throes of despair ... and humiliation, to a powerful entity of prosperity. Thus were born the so called first generation reforms. The experiences, loop holes and vicissitudes of the first generation reforms, led to further thinking, rethinking and to the consequent rebirth of reforms into the second generation reforms reforms which were far more pragmatic in nature. All these reforms led to improvements much improvement ... but not for all and not for all sectors. Thus, while the rich got to buy Merc's at interest rates as low as 6% p.a., the poor farmers, India's backbone, got the same at almost twice the rate to buy tractors! Similarly, although we had 60 million tonnes of food grains (in 2001) rotting in our godowns, 50 million of the extremely poor population were dying of hunger!! The recent World Bank Report which on one hand shows that Indian cities can boast of much higher levels of litres per capita drinking (lpcd) water than other major cities of the world, warns on the other hand of the serious water scarcity problem facing the whole nation very shortly. It is said that in spite of Planning ... and reforms, the foodgrain availability in India in 2002-03 was less than what had been during the notorious Bengal famine!! In Madhya Pradesh, even today, it is claimed that a sizeable population gets work only for nine days a year - and that too at Rs 10/- per day!! Shocking.... but true, stark reality ... not fiction.

This paper which is a modest attempt made to review the origin and performance of the first generation reforms and the subsequent second generation reforms, with a special note being made to fiscal reforms, throws light on the need to tread forward cautiously without forgetting our past flaws, weaknesses and limitations. It shows that failure to do the same would lead to in all possibility only to a pyrrhic victory. Is that all we get ... all that we want from reforms?

1.0 Introduction

1.1 The Indian economy was in a stage of deep crisis by June 1991. It was primarily on account of the lack of financial discipline of the earlier governments, failure of monsoons, bunching of external payment obligation as well as the Gulf war. India was close to defaulting on its international commitments for the first time. Her credit ratings were downgraded and borrowing from external commercial markets was next to impossible. Besides inflation rising to around 17% and foreign exchange reserves a little over \$1 billion, barely sufficient to meet India's import bill for a week, the current account deficit in the balance of payments was \$9.9 billion, with the fiscal deficit going up to around 8.4% of the GDP [General Studies, 2001:F79].

1.2 The new economic policy (or the first generation reforms although it was not called so at that time) of Dr. Manmohan Singh was launched in 1991 in the very cloudy days of India's economy as portrayed above. The policy, related to 'Economic Restructuring', consisted broadly of two sets of measures/programmes, namely: the short term stabilization programme to bring the economy back on track and the medium to long term structural adjustment programme to correct the structural rigidities and bottlenecks in the economy.

1.2.1 The aim of the short term stabilisation programme was primarily to control inflation and remove the balance of payment deficit with the help of four distinct policy actions namely monetary policy, fiscal policy, exchange rate policy and social sector policy. The aim of the fiscal policy was to reduce Government's fiscal deficit by reducing government expenditure as well as increasing the tax base. Food and fertilizer subsidies were consequently reviewed and measures to augment revenues as suggested by the Chelliah Committee were considered. All these measures brought down the fiscal deficit from 8.4% in 1990-91 to 5.6% in 1992-93 [General Studies, 2001:F79].

Through the monetary policy, credit was tightened (interest rates were increased); RBI was given more autonomy and the automatic monetisation of Government's deficit was given up. At this time the Narasimhan Committee was also set up to recommend measures for financial sector reforms.

With regards to the exchange rate policy, to correct the exchange rate, the rupee was devalued by 23% and in early 1992 the government introduced LERMS (Liberalized Exchange Rate Management System) to promote trade. In 1994-95, the government also made the rupee convertible on current account.

As far as the social sector is concerned, amongst other actions/reforms primarily meant to protect the vulnerable sections from the fall out of macro-economic adjustments, the allocation for merit goods and poverty alleviation schemes was increased. The Public Distribution System (PDS) was revamped for targeting deserving people and a social 'safety net' programme was launched comprising of schemes like Prime Ministers RojgarYogana (PMRY), Employment Assurance Scheme (EAS) and National Social Assistance Programme (NSAP) [General Studies, 2001:F79].

1.2.2 The second set of measures/programmes coming under the NEP (New Economic Policy) namely the medium to long term structural adjustment programme/measures consisted of industrial policy liberalization, public sector reforms, financial sector reforms and trade policy reforms. (From a centrally directed and highly controlled economy, our country was to be reoriented with these reforms to be more of a market friendly economy).

The industrial policy action included amongst other things, the abolition of licensing on almost all items (a few concerning security and environmental problem were left out), encouraging investment by large industrial houses through liberalization of MRTP Act (virtually all restrictions on MRTP companies were removed) and encouraging of foreign direct investment (FDI) by amending FERA (the limit of foreign equity participation in industries was increased).

Public sector reforms included reducing the list of industries reserved for public sector, and getting out of areas where private sector is more efficient. Disinvestment of equity in certain units was also a part of the reforms.

The financial sector reforms were based primarily on the recommendations of the Narasimhan Committee and two of the main reforms were reducing the excessive government control on the banking system (without denationalizing) and by curtailing the tendency of the government to rely on

credit control measures (like CRR and SLR) as extra - budgetary sources of cheap credit. The capital market reforms which began through the establishment of SEBI in 1992, included permitting the FII's to undertake portfolio investment and allowing Indian companies to undertake Euro issues.

The Trade Policy Reforms which led to major changes in import licensing have comprised of the lifting of all Non Tariff Barriers (NTB's) except in case of consumer goods. Many goods can now be imported on OGL (Open General License). Peak tariff rates too were slashed from around 355% to 50%. Also, besides being committed to reduce tariff rates on account of being a signatory of the WTO Agreement, India is also committed to remove all quantitative restrictions (QR's) on around 2300 items of imports from SAARC area under SAPTA [General Studies,2001:F81].

2.0 Performance of the Reforms

2.1 The Performance of the reforms introduced in 1991 has been mixed. The achievements amongst others include:

- Industry grew at the rate of over 8% during the reform decade as against 7% before the reforms [General Studies, 2002:F81].
- Rate of growth of GDP increased. From the figure of 5.8% for the decade 1980-91, it went up to 6.5% during the period 1992-98 [General Studies, 2002:F81]. During 1993-94 to 1997-98 the growth rate has averaged to more than 7% per annum - thereby crossing the barrier of the so called 'Hindu Rate of Growth' [Datt & Sundharam, 2002:253].
- Rate of inflation came down sharply from 10.3% in 1990-91 to 3.3% in 1999-2000 [*Bimal Jalan* in Kapila & Kapila (Ed), 2002:42].
- FDI inflow (approvals) jumped to \$ 14.6 billion in 1997 from the paltry \$ 200 million in 1991 (However, on account of procedural delays, the actual inflow was only \$3.2 billion) [General Studies, 2002:F81].
- Fiscal deficits were brought down from 8.3% in 1990-91 to 5.6% in 1999-2000 [*Bimal Jalan* in Kapila & Kapila (Ed), 2002:42]. (However, it should be noted that consistency was lacking- fluctuations did take place).
- The country was able to build foreign exchange reserves of US\$ 32.4 billion in 1998-99(As of end -April 2005 it is over \$140 billion).
- Proportion of trade in India's GDP went up from 14% (in 1990-91) to 18% (in

- 1998-99).
- Gross domestic savings as percentage of GDP crossed 22% in all post reform years as against only twice in the earlier 40 years [Y.V.Reddy in Kapila & Kapila (ed), 2002:61].
 - In the external sector, external debt to GDP ratio came down from 41% in 1991-92 to 23.5% in 1998-99 [Y.V.Reddy in Kapila & Kapila (Ed), 2002:61].
 - The average annual rate of growth of exports of goods and services of 11.3% during 1990-99 is higher than the average of 8.1% in the 'eighties' [Y.V.Reddy in Kapila & Kapila (ed), 2002:61].

2.2 The shortcomings of the reforms have been as follows:

- The reforms process seemed to have more urban bias. The pace of reduction in rural poverty has slowed down after the reforms.
- As per the World Development Report (2000-2001), India had in 1997, over 44% of its population below the poverty line. This figure of India's poor works out to almost 34.95% of the world's total poor. It thus means that almost one out of a little over two Indians is living in poverty... and about one out of three of the world's poor is an Indian!
- The growth in the agricultural sector has not been uniform ranging from 0.7% to 7.6%.
- The relative share of the 'agriculture and allied activities' in GDP during the period 1990-91 to 2000-01 declined to 28.6% from 36.4% during 1980-81 to 1989-90 [Uma Kapila in Kapila & Kapila (Ed), 2002: 161]. Agriculture suffered because of economic reforms. (However, it should be noted that productivity did not fall from 176 million tonnes produced in 1991, India is now the second largest producer of food grains with 212.2 million tonnes [Economic Survey of India]).
- Although there was progress made on the industrial growth front as seen earlier, since the second half of 1996-97 there has been a moderate deceleration in the industrial growth. Industrial stagnation continued in 1998-99. To cite an example, while industrial production grew @ of 7% in October 1997, it was only 2% in October 1998 [Agrawal & Mithilesh, 2002: 238]).
- Inequalities have widened.
- The fiscal discipline (indicated by the fall in fiscal deficit) has been achieved through drastic reduction in public expenditure /investment especially in the social sector and not through reduction of wasteful government expenditure.

- Contribution of MNCs to exports not at all impressive.
- Effective social safety net against loss of industrial employment on account of reforms, still not in place.
- Disinvestment policy of the government has not taken off as planned. Unviable PSU's still continue to be sustained through precious borrowed funds.

3.0 Need for Second Generation Reforms

3.1 The Second Generation Reforms that we regularly hear off, refer to the steps which are yet to be taken in the path of structural adjustment (some of the steps have already been introduced recently). They could in fact be called as 'second phase of economic reforms' instead of being called as 'Second Generation Reforms.' These reforms are very crucial in the functioning and growth of the country they are supposed to plug the drawbacks and shortcomings of earlier initiated reforms. Besides, the reforms process has to be extended to all State Governments too - State Governments should also undertake liberalization of their controls and procedures. That the government has seriously taken upon itself the task of initiating and proceeding with the Second Generation Reforms on account of its vital importance can be seen way back through the budget speech in 2000-01 of the then Finance Minister, Mr. Yashwant Sinha. Elaborating on the philosophy of the Second Generation Reforms, he stated that growth is not an end in itself but it is a means of increasing employment and standards of the people, especially of the poorest. According to him, sustained and broad based growth, combined with all other programmes for accelerating rural development, promoting housing, building roads, enhancing knowledge and quality of human resources will all impart a strong impetus to employment expansion (and this is the best solution to reduce poverty in India).

- 3.2 The Second Generation Reforms that are so crucial and inevitable can be summed up as follows [General Studies, 2001:F81]:
- Tax Reforms: Stricter compliance of tax laws and introduction of a full-fledged system of VAT.
 - Financial Sector Reforms: These include restructuring the banks and divesting government's control on the nationalized banks (in line with Narsimhan Committee II recommendations) and opening up of the insurance sector.

-
- **Legislative Reforms:** To include passing of the Money Laundering law, setting up a Competitions Commission (in place of MRTP Commission), removal of outdated laws and regulations and amendment of Companies Act.
 - **Social Sector Reforms:** To include effective safety net before restructuring the industrial sector, comprehensive old and social disability security and spread of elementary education amongst the under privileged.

To the above, one could also add another category of reforms the 'Miscellaneous' Reforms. This is so because reforms are also needed to remove bottlenecks which exist in the form of delays in decision making and absence of proper legislative framework which prevent infrastructure development. Labour legislation too is required so as to utilize the full potential of labour intensive techniques.

4.0 **Second Generation Fiscal Reforms**

- 4.1 One important cause for the introduction of reforms in Indian as seen earlier was to control deficits both fiscal and revenue of the government - both Central as well as State. The reforms, although achieved some success on this front (as has been seen earlier) in the initial years of introduction, has not been able to sustain it. Now, despite the reforms (of well over 10 years), State as well as Central Government's are still facing the problem of fiscal deficits. The basic cause of the rising fiscal deficit is the emergence of revenue deficits of the Central as well as State governments. The combined revenue deficit reached a peak level of 6.8% of GDP way back in 1998-99 itself [Datt & Sundharam, 2002:262]. Consequently the savings were adversely affected. The savings of the public sector during 1993-94 to 1998-99 averaged just around 1% only [Y.V.Reddy in Kapila & Kapila (Ed), 2002:64].

Implementation of the Fifth Pay Commission's recommendations, (This drastically increased government expenditure on salaries and pensions. Of the Central government alone, the salaries and pensions as a percentage of total revenue receipts went up to 20.8% in 1998 999 as compared to 17.4 % before the revision [Datt & Sundharam, 2002:262]) and cyclical recession in economic activity (This had an a adverse effect on the growth of tax revenue of both the Central & State governments - the buoyancy of gross tax revenues

of the Centre during 1980-81 to 1989-90 which was 1.14, declined to 0.91 during 1990-91 to 1998-99...and that of the States from 1.12 to 1.04 [Datt & Sundharam, 2002:262-263]) have been two of the important causes which have contributed to the fiscal imbalances prevailing in India. Rising of interest on government borrowings and steady growth in subsidies have also contributed to the fiscal imbalance.

From the revenue front, the reforms process led to a reduction in personal and corporate taxes as well as in excise duties and custom duties. In case of non tax revenue which mainly comes from two components namely, return on investments of the government and recovery of cost of public services, nothing worth the mention (from the positive front) is there. For example, in case of the Central Public Sector Enterprises the total investment was around Rs. 2, 30,000 crores in 1998 -99 and the rate of return in terms of dividend and interest was only 5.21% [Datt & Sundharam, 2002:263]. It should be noted that bulk of the return comes from a few enterprises in petroleum, financial and telecommunications sector the rest make only losses. In the case of the 2nd non tax revenue source i.e. cost recovery of public services, studies show that around the mid- nineties the cost recovery was around 8.4% and 18.6% for social and economic services provided by the Centre. This implies a subsidisation of over 90% in social services and over 80% in case of economic services [Datt & Sundharam, 2002:263]. The position of States is far worse. It is pertinent to note here that the fiscal management in the mid-nineties was characterized by the fact that the huge revenue deficits were bridged through galloping borrowings which crossed the Rs. 100,000 crores mark [Sethuraman, 2002].

4.2 From whatever has been mentioned above we can see that the trend in imbalances prevailing need to be reversed and reversed very fast - with the help of the Second Generation Reforms. The new reforms should learn the lessons from the limitations of the earlier reforms. Some of the major thrust areas of second generation fiscal reforms could be as follows [Datt & Sundharam, 2002:264]:

- To reduce the fiscal deficit (to about 3% of the GDP for the Centre and 2% for the States).
- To bring about a zero revenue deficit.
- To proceed rapidly with the disinvestment of unviable, i.e. loss making

- government undertakings.
- To reduce subsidies on non-merit goods.
- To do away with 'hidden' subsidies going to the well-to-do sections of society.
- To create a better environment for cost recovery for both - economic and social services provided by the government.
- To raise capital expenditure on rural infrastructure and development to stimulate growth of the agricultural/rural sector.

4.3 Of the major thrust areas mentioned, one important area is to achieve the zero revenue deficit by the Centre and the States [Datt & Sundharam, 2002:264]. The Second Generation Reforms could achieve this major objective through the following:

- Controlling administrative expenditure (downsizing by itself may be insufficient - 'rightsizing' also is essential).
- Disinvestment of loss-making enterprises (the second generation reforms should primarily consider the policy of disinvestments of loss making enterprises only).
- Reducing subsidies on non-merit goods. Subsidies should go only to the weaker sections. (Subsidies account to a high figure of almost 15% of the GDP).
- Cost Recovery of Services should be improved.
- Reducing public borrowing to bring down interest payments (interest payments accounted for over 50% of non-plan revenue expenditure of the central government in 1999-2000).
- Widening of tax base through the addition of agricultural taxes and taxes on services.
- Improving the working of State Electricity Boards (SEB's) and State Transport Undertakings (to be done through reduction of subsidies, proper pricing, checking on pilferage and theft in case of electricity etc. If the working in terms of profitability does not improve - they could even be privatized in phases). It should be remembered that in the case of

power alone, the losses resulting from lower than economic pricing to the agricultural and domestic sectors amounts to almost Rs. 25,000 crores a year [Rakesh Mohan in Kapila & Kapila (ed), 2002:26]. Prime Minister Manmohan Singh while addressing a conference of state energy secretaries on 29th May, 2005, puts the figure of accumulated losses of SEB's to over Rs. 21,000 crores.

- Improving tax administration and checking on tax evasion.

5.0 Conclusion

5.1 To sum up we can say that the new economic policy introduced in 1991 initiated a lot of changes. Improvements did take place. Today, as we stand, the fruits of the reforms process are there for all to see. Rightly so India has been placed among the top ten reforming nations (out of 145 nations surveyed) according to a World Bank Report titled "*Doing Business in 2005: Removing Obstacles to Growth*". The per capita income which was Rs. 8,293 in 1991 has gone up to Rs. 20,989 in 2004; the share of the Services sector to the GDP has gone up from 31% in 1991 to 51.4% in 2004; FDI which stood at \$165 million in 1991-92 (August-March) has gone up to \$ 2,549 million in 2004-05 (March-November) [Economic Survey of India]. Also, besides containing our annual inflation to a single digit and having a number of Indians on the Forbes list of the worlds richest people, India can now proudly boast of forex reserves sufficient to import goods for over two years (unlike in 1991 when it was sufficient for just around a week or so).

5.2 ... But along with the improvements (some of which were only temporary or small in nature or beneficial only to a few from the society) there were also a number of problems and shortcomings. In spite of the reforms process and the ongoing thinking and rethinking, we still have rigid labour regulations (the existing laws apply only to the organised sector labour force which constitutes only 8% of the total labour force. 92% of the labour force derive no benefit from these laws [Montek S. Ahluwalia in Kapila & Kapila, 2002: 114]); we still lack in administrative and judicial reforms. As per the World Health Report, 2005, around one million new born die in India every year even now; only sixteen percent of population in 1995 has access to sanitation [World Development Report, 1999/2000] and 53% of children under 5 years during 1992-97 were suffering from malnutrition (higher than any other country, even Ethiopia and just a shade lower to Bangladesh) [World

Development Report 1999/2000]. As per the World Bank prepared composite index called as 'Human Development Index' (HDI) comprising of Per Capita GDP Index, Education Index and Life Expectancy Index, all considered to be the three basic essentials of life, India ranks at 128th position out of 174 countries [Y. V. Reddy in Kapila & Kapila (ed), 2002:70]. Besides as mentioned earlier there is still no respite to poverty ... (Crimes have consequently increased manifold ... and so have vices like gambling. Organised lottery market in India totals to about \$7 billion i.e. roughly 2% of the country's GDP. It appears that the poor resort to gambling to become rich [Varma Pavan K., 2005]).

- 5.3 The Second Generation Reforms are very essential to overcome the problems created by the now so called first generation reforms and also to cater to our present needs and new challenges of the new millennium - a millennium where globalization has gained an irreversible and rapid momentum. We need to show greater urgency and vigour in implementing the next phase of reforms (the reason for the urgency is the unique state of our demographic transition wherein in the next two decades or so India will have a population structure comprising the largest share of working population - thereafter due to the ageing process the vigour of this population will come down).
- 5.4 Amongst the Second Generation Reforms, fiscal reforms do play an important role. Proper governance is a must. 'Fiscal Responsibility' and fiscal consolidation coupled with good governance will go a long way in 'repairing' our India of some of its economic woes. The insights so provided in the Report of the Committee on 'India Vision 2020', Planning Commission, Government of India, would also help us to move in the right direction. We would then have a better and greater India a prosperous and a more equitable India.

References

1. Agrawal, S. P and Mithlesh, Gupta (2002); *Information India 1997-98 & 1998-99*; Concept Publishing Co., New Delhi.
2. Chronicle Year Book 2005
3. Datt, Ruddar and Sundharam, K.P.M. (2002); *Indian Economy*; S. Chand & Co. Ltd; 45th Revised Edition.
4. Economic Survey of India.
5. General Studies Manual 2001; Tata McGraw-Hill.
6. *India Vision 2020 The Report* (2004); Planning Commission, Government of India [under Chairmanship of S.P. Gupta]; Academic Foundation, New Delhi.
7. Kapila, Raj and Kapila, Uma [Ed] (2002); *India's Economy in the 21st Century*; Academic Foundation; Second Revised edition.
8. Parikh, Kirit and Shah, Ajay; *Second Generation Reforms*; India Development Report 1999-2000 [ed. by Kirit S. Parikh]; Oxford University Press.
9. Rao, S.L. (1992); *Economic Reforms and Indian Markets*; Wheeler Publishing, First edition.
10. Sethuraman, S; *Indian Economy A New Dawn*; Manorama 2002.
11. Varma, Pawan K; *The Effects of Liberalisation*; Penguin India Reference Year Book 2005.
12. World Development Report, 1999/2000.
13. World Development Report, 2000-2001.
14. World Health Report, 2005.

BEZIER CURVES AND SUBDIVISIONS

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This paper proposes to develop mathematical description for the Bezier curve of arbitrary degree by generalizing the development for the quadratic and cubic Bezier curves, creating a parameterized version of curve and writing it in matrix form and using this form to develop subdivision matrices that allow us to use matrix multiplication, Bezier control polygons for cubic curves.

1. INTRODUCTION

The Bezier curve representation is the one that is utilized most frequently in Computer Graphics and Geometric Modeling. The curve is defined geometrically which means that the parameters have geometric meaning- they are just points in three-dimensional space. It was developed by two competing European Engineers in the late 1960s to attempt to draw automotive components.

Recursive subdivision generates a sequence of control polygons that converges to the underlying Bezier curve.

1.1 SPECIFICATION OF THE CURVE

Given a set of control points, $\{p_0, p_1, \dots, p_n\}$ we can define a Bezier curve of degree n by either of the following definitions:

The Analytical definition

$$P(t) = \sum_{i=0}^n P_i B_{i,n}(t) \quad \text{Where } B_{i,n}(t) = {}^n C_i t^i (1-t)^{n-i}$$

are the Bernstein Polynomials of degree n and t ranges between zero and one, i.e. $0 \leq t \leq 1$. The Bernstein polynomials are quite easy to write down: The coefficients ${}^n C_i$ can be obtained from PASCAL's triangle; the exponents on t term increases by one as i on the $(1-t)$ term decreases by 1 as i increases. These polynomials are all non-negative. They form the partition of unity hence they have utility in Geometric Modeling and Computer Graphics. This definition specifies the blending of the control points with Bernstein polynomials. [1].

Geometric Definition

$$P(t) = P_n^{(n)}(t) \quad \text{where} \quad P_i^{(j)}(t) = \begin{cases} (1-t)P_{i-1, j-1}^{(j)}(t) + tP_{i, j-1}^{(j)}(t) & \text{If } j > 0 \\ P_i & \text{otherwise} \end{cases}$$

And t ranges between 0 and 1.

This specifies a recursive generation procedure that calculates successive points on the line segments developed by control point sequence [2].

1.2 Properties of Bezier curves:

The Bezier curve has the properties similar to that of the quadratic and cubic curve. This can be verified directly from the equations above.

- P_0 and P_1 are on the curve.
- The curve is continuous and has continuous derivative of all orders.
- The tangent line to the curve at point P_0 is the line P_0P_1 and the tangent line to the curve at the point P_n is the line P_nP_{n-1} .
- The curve lies within the convex hull of its control points. This is because each successive $P_i^{(j)}$ is a convex combination of the points $P_{i-1}^{(j-1)}$ and $P_{i+1}^{(j-1)}$.
- P_1, P_2, \dots, P_{n-1} are all on the curve only if the curve is linear.

1.2 Degree Elevation

A polynomial of degree n is also a polynomial of degree m for any $m \geq n$. As such, P has a vector of control points P_m so that $P(t) = (P_m)_k B_{km}(t)$. The degree elevation algorithm computes the control points P_{m+1} from the control points P_m .

2. LINEAR SUBDIVISION

The Bezier curve is defined for $[0, 1]$ but it can also be defined over $[0, c]$. The part of the curve corresponding to $[0, c]$ can also be defined by Bezier polygon and finding this polygon is subdivision of Bezier curve [3].

The subdivision algorithm splits the control polygon for entire Bezier curve $P[x]$ into two control polygons one corresponding to $t \in [0, c]$ and the other corresponding to $t \in [c, 1]$. Subdivision methods are useful in displaying approximate spline curves since we can continue subdivision process until the control graph approximates the

curve path. Bezier subdivision doubles the number of control polygons at each step. From the control polygon of a Bezier curve on a given interval $[a, b]$, the control polygons of the restrictions of the curve to the interval $[a, (a+b)/2]$ and $[(a+b)/2, b]$ are generated.

2.1 Developing the matrix equation

A cubic Bezier curve can be written in a matrix form by expanding the analytic definition of the curve into its Bernstein polynomial coefficients and then writing these coefficients in a matrix form using the polynomial power basis [4], i.e.

$$P(t) = \sum_{i=0}^3 P_i B_i(t)$$

$$= [(1-t)^3 \quad 3t(1-t) \quad 3t^2(1-t) \quad t^3] \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix}$$

$$= [1 \ t \ t^2 \ t^3] \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 3 & 0 & 0 \\ 3 & -6 & 3 & 0 \\ -1 & 3 & -3 & 1 \end{bmatrix} \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix}$$

Thus a cubic Bezier curve can be written in a matrix form of

$$= [1 \ t \ t^2 \ t^3] M \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix}$$

$$\text{Where } M = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 3 & 0 & 0 \\ 3 & -6 & 3 & 0 \\ -1 & 3 & -3 & -1 \end{bmatrix}$$

The matrix M defines the blending function for the curve P(t).

2.2 SUBDIVISION USING THE MATRIX FORM

Suppose we wish to generate the control polygon for the portion of the curve P(t) where t ranges between 0 and 1/2, subdivide the curve at the point t = 1/2. This can be done by defining new curve Q(t) which is equal to P(t/2). Clearly this new curve is a cubic polynomial and traces out the desired portion of P as t ranges between 0 and 1. We can calculate the Bezier control polygon for Q by using the matrix form of the curve P.

$$\begin{aligned} Q(t) &= P(t/2) \\ &= [1 \ (t/2) \ (t/2)^2 \ (t/2)^3] \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 3 & 0 & 0 \\ 3 & -6 & 3 & 0 \\ -1 & 3 & -3 & -1 \end{bmatrix} \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix} \\ &= [1 \ t \ t^2 \ t^3] \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1/2 & 0 & 0 \\ 0 & 0 & 1/4 & 0 \\ 0 & 0 & 0 & 1/8 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 3 & 0 & 0 \\ 3 & -6 & 3 & 0 \\ -1 & 3 & -3 & -1 \end{bmatrix} \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix} \\ &= [1 \ t \ t^2 \ t^3] \text{MS}_{[0, 1/2]} \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix} \end{aligned}$$

Where the matrix $S_{[0, 1/2]}$ is defined as

$$S_{[0, 1/2]} = M^{-1} \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1/2 & 0 & 0 \\ 0 & 0 & 1/4 & 0 \\ 0 & 0 & 0 & 1/8 \end{bmatrix} M$$

$$= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1/2 & 1/2 & 0 & 0 \\ 1/4 & 1/2 & 1/4 & 0 \\ 1/8 & 3/8 & 3/8 & 1/8 \end{bmatrix}$$

So $Q(t)$ is a Bezier curve with a control polygon given by

$$Q(t) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1/2 & 1/2 & 0 & 0 \\ 1/4 & 1/2 & 1/4 & 0 \\ 1/8 & 3/8 & 3/8 & 1/8 \end{bmatrix} \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix}$$

In a similar way one can obtain the Bezier control polygon for the second half of the curve portion where t ranges between $1/2$ and 1 . Using matrix calculations similar to those above, one can generate an iterative scheme to generate the sequence of points on the curve. To do this, we need one additional S matrix. If we consider the portion of the cubic curve $P(t)$ where t ranges between 1 and 2 , we generate Bezier control points of $Q(t)$ by reparameterisation of the original curve namely by replacing t by $t+1$ to obtain

$$Q(t) = P(t+1).$$

$$= [1 \ t \ t^2 \ t^3] \text{MS}_{[1,2]} \begin{bmatrix} P_0 \\ P_1 \\ P_2 \\ P_3 \end{bmatrix}$$

Where after some calculation $S_{[1,2]}$ is given by

$$S_{[1,2]} = \begin{bmatrix} 0 & 0 & 0 & 1 \\ 0 & 0 & -1 & 2 \\ 0 & 1 & -1 & 4 \\ -1 & 6 & -12 & 8 \end{bmatrix}$$

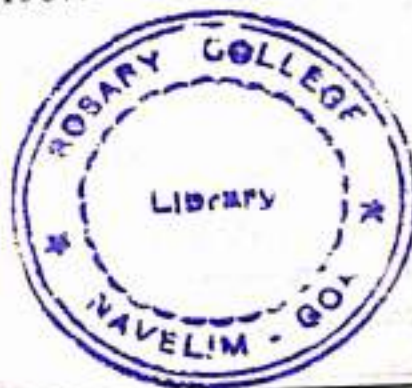
Now using the combination of $S_{[0,1/2]}$, $S_{[1/2,1]}$ and $S_{[1,2]}$ we can produce Bezier control polygons along the curve similar to the methods developed with divided differences. To see what I mean here, first notice that $S_{[1,2]} S_{[0,1/2]} = S_{[1/2,1]}$. This states that by applying $S_{[0,1/2]}$ to obtain a Bezier control polygon for the first half of the curve, we can apply $S_{[1,2]}$ to this control polygon to obtain the Bezier control polygon for the second half of the curve. Extending this if we apply $S_{[1,2]}^i S_{[0,1/2]}^k$ we obtain the Bezier control polygon for the portion of the curve where t ranges between $i/2^k$ and $(i+1)/2^k$. By repeatedly applying $S_{[1,2]}$ the control polygon can be moved along the curve.

3. Conclusion

Given a sequence of $n + 1$ control points one can specify a Bezier curve of degree n defined by this points. The matrix form of cubic Bezier curve can be developed and using reparameterization one can develop matrices, which enable us to produce Bezier control polygons for the desired section of the curve and to move from one Bezier control polygon to an adjacent on the curve. These operations are extremely useful when utilizing the hardware with geometry engines that multiply 4×4 matrices rapidly.

References

1. Farin, G., Curve and Surfaces for CAGD: A Practical Guide, Academic Press New York, 1990.
2. Warren ,Joe., Weimer ,Henrik, Subdivision Methods for geometric Design: A constructive Approach, Morgan Kaufmann Publishers New York, 1991.
3. Dyn,N., Gregory,J. and Levin,D.: Analysis of uniform binary subdivision schemes for curve design. Constructive Approximation7, pp.127-147,1991.
4. Micchelli,C. and Prautzsch,H.: Computing curves invariant under halving, Computer-Aided Geometric Design4, pp.113-140,1987.



GOA TOURISM DEVELOPMENT CORPORATION : AN OPERATIONAL ANALYSIS

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This paper makes an attempt to examine the operational performance of GTDC with regard to selected parameters viz manpower cost, publicity material expenses, general expenses and other operating expenses. The study is based on secondary and primary data. The secondary data is taken from the annual reports of GTDC for the period of 10 years i.e. from 1991-92 to 2000-01. The primary data is collected by interacting with the officials of GTDC. In order to accomplish the objectives of the study, Ratio analysis analytical tool is employed.

Background

Tourism has been increasingly becoming one of the pivotal industries in the World in general and India in particular. Tourism especially assumes importance in developing countries like India. In the present economic and political changes that India has been undergoing, International trade particularly of non-traditional item has assumed more importance. One of the earliest methods suggested for closing the chronic gap in our balance of payments is the establishment of tourism industry. One of the obvious reasons for this is that unlike other industries, tourism industry does not demand much technological sophistication. Moreover, tourism interacts with several nation-building activities. It serves an effective instrument for national integration. None of any activity has such a great potential for breaking barriers of caste and creed and promote an inter-regional understanding. Tourism involves the movement of people to and their stay at various destinations. In the decade 1961-71 there was rapid increase in the population of Goa compared to the average increase of 24.8% in India. Following the integration of this territory into the Indian union, rapid development took place and there was a rapid growth of tourist arrivals (both domestic and foreign) in Goa. The Dept of Tourism Govt of Goa was the only agency looking after the promotion of tourism, developing basic infrastructure facilities and providing accommodation facilities to the middle and low-income group tourist. The tourism industry being a service oriented industry it was felt that it would be difficult for the Dept of Tourism to promote tourism, develop basic infrastructure

facilities and provide accommodation to the middle and low-income group tourist. Therefore it was decided that the commercial activities looked after by the Dept of Tourism should be entrusted to an autonomous and corporate agency, which would have a greater flexibility to carry out the development works. Goa Tourism Development Corporation (GTDC) was incorporated on 30th March 1982 under the Indian Companies act 1956. The company prepared the Memorandum of Association and Articles of Association, which provided guidelines for its smooth functioning. The main activities of the corporation can be broadly categorized as follows: Accommodation, Sightseeing tours, River Cruise and Package tours.

Objectives of the study

The broader objective of the study is to examine the operational performance of GTDC with regard to selected parameters viz Manpower cost, Publicity material expenses, General expenses and Other operating expenses.

Data and Methodology

The Study is based on Secondary and Primary data. The Secondary data is taken from the Annual reports of GTDC for the period of 10 years i.e. from 1991-92 to 2000-01. The Primary data is collected by personally visiting and interacting with the officials of GTDC. Ratio Analysis analytical tool was employed.

Discussion and Analysis

Percentage of Total Operating expenses to the Total income

The magnitude of Total operating expenses incurred by a concern has a direct bearing on its profitability, the higher the operating cost the lower the level of profitability and vice versa. The percentage of Total operating expenses to the Total income reflects the share of the total operating expenses to the total income earned by the concern under study and depicts the surplus earned or deficit incurred. A higher percentage indicates that the total operating expenses is not kept under control and a lower percentage denotes that the corporation has given much attention towards the control of this cost.

Table 1 Percentage of total operating expenses to total income

(Rs. in Lakhs)

Year	Total operating expenses	Total income	Percentage
1991-1992	265	309	85.76
1992-1993	300	317	94.63
1993-1994	355	368	96.46
1994-1995	403	417	96.64
1995-1996	467	478	97.69 (94.23)
1996-1997	528	552	95.65
1997-1998	586	598	97.99
1998-1999	661	671	98.50
1999-2000	715	696	102.72
2000-2001	747	697	107.17 (100.40)

Source: Annual reports of GTDC for the related periods (1)

Figures in parentheses are average percentages (2)

Table 1 exhibited that the percentage of total operating expenses to the total income showed an increasing trend and the percentage varied from 85.76 to 107.17 during the study period. This demonstrated that there has been an increase in total operating expenses as compared to the increase in total income during the above period. During the first five years, the average percentage was 94.23 and during the latter period of five years the average percentage was 100.40. This escalation in the average ratio during the latter period could be due to an excessive spending by the corporation on advertisement and publicity, repairs to vehicles and launches and increase in salaries, wages and bonus of GTDC staff.

Percentage of Manpower cost to Total operating expenses

The Percentage of manpower cost to total operating expenses indicates the relative share of manpower cost to the total operating expenses. A higher percentage implies that a large share of the total manpower cost compared to other elements in the total cost. It also indicates the inability of the corporation to control the manpower cost. A lower percentage, on the other hand is an indicator of lower expenditure on the total manpower cost or a better control over these cost.

The information relating to the percentage of manpower cost to the total operating expenses of GTDC for the period under study is shown in table 2

Table 2 Percentage of manpower cost to the total operating expenses.

Year	Manpower Cost	Total Operating Expenses	(Rs in lakhs)
			Percentage
1991-1992	118	265	44.52
1992-1993	134	300	44.66
1993-1994	150	355	42.25 (43.81)
1994-1995	166	403	41.19
1995-1996	201	467	43.04
1996-1997	255	528	48.29 (44.17)
1997-1998	309	586	52.73
1998-1999	346	661	52.34
1999-2000	390	715	54.54
2000-2001	392	747	52.47 (53.02)

Source: Annual reports of GTDC for the related periods. (1)

Figures in parentheses are average percentages (2)

Table 2 revealed that from 1991-92 to 1993-94, the average percentage of manpower cost to the total operating expenses was 43.81 and from 1994-95 to 1996-97, the average percentage was 44.17. This trend showed that the average percentage in the subsequent three years has increased as compared to the first three years of the study period. From 1997-98 to 2000-01 the average percentage was 53.02 the highest among all the three periods of study thereby indicating that during the last period of study Manpower cost has been more than half of the total operating expenses. This mushrooming in the average percentage could be due to the increase in salaries and payment of arrears on account of the implementation of 5th pay commission scales to the existing staff of GTDC.

Percentage of Publicity material expenses to the Total operating expenses

The Publicity material expenses to the total operating expenses exhibit the size and significance of publicity material to the total operating expenses. It is a common phenomenon for every business establishment to maintain a separate section for the purpose of advertising and publicity, to create a demand and procure the orders from the customers for their products. Hence, the cost for creating a demand for the product is incurred. A high percentage implies that the advertising and publicity material expenses are more significant compared to other elements of the total operating expenses. On the other hand, a lower percentage indicates that these expenses are not very much significant.

Table 3 exhibits the percentage of Publicity material expenses to the Total operating expenses of GTDC for the period under consideration.

Table 3 displays that in the year 1991-92 the percentage of publicity material expenses to the total operating expenses was 1.50 the highest among all the years of study and in the subsequent years the percentage went on declining thereby demonstrating that publicity material expenses are not a significant cost in the total operating expenses of GTDC. This also indicated that GTDC share in the publicity material expenses has been decreasing during the study period and from 1997-98 to 2000-01 it has remained the same.

Table 3 Percentage of publicity material expenses to the total operating expenses.

(Rs in lakhs)

Year	Publicity Material expenses	Total Operating	Percentage
1991-1992	4	265	1.50
1992-1993	2	300	0.66
1993-1994	2	355	0.56
1994-1995	3	403	0.74
1995-1996	4	467	0.85
1996-1997	2	528	0.37
1997-1998	1	586	0.17
1998-1999	1	661	0.15
1999-2000	1	715	0.13
2000-2001	1	747	0.13

Source: Annual reports of GTDC for the related periods (1)

Percentage of General expenses to Total operating expenses

The percentage of General expenses to the Total operating expenses indicates the size and importance of general expenses to the Total operating expenses. If the percentage is higher, it signifies that the general expenses account for a bigger share of the Total operating expenses and vice versa.

Table 4 exhibits the percentage of General expenses to the Total operating expenses of GTDC for the period under study.

Table 4 revealed that the percentage of general expenses to the total operating expenses of GTDC varied from 5.33 to 8.83 during the period of study. It is observed that the percentage increase during the latter period of 5 years was more as compared to the increase during the first five years period. This increase in percentage of general expenses to the total operating expenses during the latter 5 years period could be due to an increase in the travelling and conveyance, postage and telephone expenses.

Table 4 Percentage of general expenses to the total operating expenses.

(Rs in lakhs)

Year	General Expenses	Total Operating Expenses	Percentage
1991-1992	15	265	5.66
1992-1993	16	300	5.33
1993-1994	19	355	5.35
1994-1995	24	403	5.95
1995-1996	31	467	6.63 (5.78)
1996-1997	37	528	7.00
1997-1998	30	586	5.11
1998-1999	45	661	6.80
1999-2000	44	715	6.15
2000-2001	66	747	8.83 (6.77)

Source: Annual reports of GTDC for the related periods (1)
 Figures in parentheses indicate average percentages (2)

Percentage of Other Operating expenses To the Total Operating expenses

The percentage of Other operating expenses to the Total operating expenses displays the size and importance of the Other operating expenses to the Total operating expenses. A lower percentage indicates that Other operating expenses are kept under control and a higher percentage denotes that the corporation is not given much attention towards controlling of these expenses.

Table 5 reveals the percentage of other operating expenses to the total Operating expenses of GTDC for the period under study

Table 5 Percentage of other operating expenses to the total operating expenses.

(Rs in lakhs)

Year	Other Operaring Expenses	Total Operating Expenses	Percentage
1991-1992	98	265	36.98
1992-1993	108	300	36.00
1993-1994	143	355	40.28
1994-1995	166	403	41.19
1995-1996	181	467	38.75
1996-1997	169	528	32.00
1997-1998	187	586	31.91
1998-1999	211	661	31.92
1999-2000	224	715	31.32
2000-2001	235	747	31.45

Source: Annual reports of GTDC for the related periods (1)

The percentage of other operating expenses to total operating expenses was computed for the period of 10 years i.e. from 1991-92 to 2000-01. It is witnessed from the table 5 that the percentage of other operating expense to the total operating expense varied from 31.32 to 41.19. During the latter five years of the study period the percentage was lower as compared to the earlier period of five years. This decline in percentage of other operating expenses to the total operating expenses during the latter period of five years might be due to adequate internal control procedures adopted for the purchase of stores and spares, fuel and oil, linen washing and laundry expenses.

Percentage of Gross operating margin (EBIT) to Total income

The operating profit ratio indicates the operating efficiency or inefficiency of a business. The standard operating profit ratio is 10 percent. So, an operating profit ratio of 10 percent or more is an indication of the operating efficiency of the business. On the other hand, an operating profit ratio of less than 10 percent is an indication of operating inefficiency of the business.

Table 6 Percentage of gross operating margin (EBIT) to total income

(Rs in lakhs)

Year	EBIT	Total Income	Percentage
1991-1992	44	309	14.24
1992-1993	18	317	5.68
1993-1994	12	368	3.26
1994-1995	15	417	3.60
1995-1996	10	478	2.09
1996-1997	25	552	4.52
1997-1998	12	598	2.00
1998-1999	10	671	1.49
1999-2000	-19	696	-2.73
2000-2001	-50	697	-7.17

Source: Annual reports of GTDC for the related periods (1)

Note: EBIT stands for Earning before interest and tax (2)

Table 6 demonstrated that the percentage of gross operating margin to the total income was the highest 14.24 in the year 1991-92. This percentage was higher than the standard ratio of 10 percent thereby indicating the operating efficiency of the corporation. During the subsequent years i.e. from 1992-93 onwards till 1998-99, the

percentage went on retreating and in the years 1999-2000 and 2000-01 it showed negative percentage. This indicated that the expenditure incurred by the corporation during the last two years of the period was more than the income earned by the corporation. This is mainly due to the implementation of 5th pay commission scales to the existing staff and upgrading of rooms in some of the GTDC resorts

Net Profit Margin (PAT) To Total Income

The net profit to total income ratio establishes a relationship between Net profit (Profit after tax) and Total income. It is the overall measure of the firm's profitability. The two basic elements of the ratio are net profits and total income. Net profits are obtained after deducting operating expenses and income tax. This ratio indicates that if the profits of the firm are not adequate, the firm will not be able to achieve a satisfactory return on investment. Higher the ratio, better the profitability and vice versa

Table 7 Net profits margin (PAT) to total income

(Rs in lakhs)

Year	Net Profit (PAT)	Total Income	Percentage
1991-1992	44	309	14.24
1992-1993	18	317	5.68
1993-1994	12	368	3.26
1994-1995	15	417	3.60
1995-1996	10	478	2.09
1996-1997	24	552	4.52
1997-1998	11	598	2.00
1998-1999	10	671	1.49
1999-2000	-19	696	-2.73
2000-2001	-50	697	-7.17

Source: Annual reports of GTDC for the related periods (1)

Table 7 reveals that the percentage of Net profit to Total income from 1991-92 to 1998-99 varied from 14.23 to 1.49. In the year 1991-92 the percentage was 14.23 the highest among all the years of the study period. In the subsequent years the percentage went on declining and in the years 1999-2000 and 2000-01 the percentage was negative 2.73 and 7.17. This is mainly due to the fall in occupancy, increase in capital expenditure on account of refurbish of rooms at Tourist resorts Calangute and Margao and building up an ultra modern tourist complex at Calangute resort (Annexure) comprising of 19 rooms, one restaurant and three shops. Besides 5th pay commission scales and arrears were also paid to the existing GTDC staff.

Conclusion

The operational analysis of GTDC was examined with regard to selected parameters namely manpower cost, publicity material expenses, general expenses and other operating expenses. The different operating ratios were worked out and analysed for a period of 10 years. The analysis and discussion of different operating ratios revealed the following concluding remarks.

It was observed from the study undertaken that the percentage of total operating expense to the total income showed a increasing inclination except for the year 1996-97. The publicity material expenses showed a fluctuating tendency over the years. However, the percentage of publicity material expenses to the total operating expenses showed a decelerating trend. The percentage of gross operating margin to the total income was higher than the standard ratio of 10 percent in the year 1991-92 thereby indicating the operating efficiency of the corporation. During the subsequent year onwards the percentage went on receding and in the last two years it showed negative percentage. It was noted that the percentage of net profit to total income was the highest in the first year of the study period, from the subsequent year onwards the percentage went on declining and in the last two years of the study period it showed negative percentage.

References:

1. Annual reports of Goa Tourism Development Corporation (GTDC) from 1991-92 to 2000-01
2. S.P. Gupta (1995): Statistical methods, Sultan Chand and Sons, New Delhi.
3. Dr B.Ramesh and M.R.Patil, Financial Analysis of Urban Co-operative banks in Goa, Management Accountant journal vol 33, no 2, Feb 1998
4. S.C.Kuchhal (1987): Corporation Finance (Principles and Problems), Chaitanya Publishing House, Ahmedabad

MOTHER TONGUE: SOCIO-LINGUISTIC AND POLITICAL ASPECTS

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The paper aims at looking at many aspects and meanings in which the term "Mothertongue" is understood in the world at large, in India and in Goa in particular.

Poets have sung the glories of the term 'mother tongue'. Many emotionally identify themselves with it. The term 'mother tongue' has been taken for granted and hardly examined by scholars from different related fields as well as by the governments who insist on mother tongue education. It is an elusive concept difficult to be defined precisely. The definitions provided in the dictionaries for instance, Webster's Third New International Dictionary defines mother tongue as 'the language of one's mother: the language naturally acquired in infancy and childhood: one's first language' - are inadequate and fail to do justice to the meanings attributed to the term 'mother tongue' by different categories of people in different places. Although, the term usually has been used to refer to the first language or primary language of an individual it has many popular connotations also (see Skutnabb-Kangas 1984: Ch. 2 cited in Romaine 1989: 19).

At the outset, it is worthwhile to bring in the distinction between 'mother tongue' and the terms 'vernacular', native language, home language and the first language. The terms do not mean the same and the distinction between them will help us understand the concept of mother tongue more clearly. 'Vernaculum' was the Latin word used for vernacular and meant 'whatever was homebred, homespun, homegrown' in opposition to things obtained through formal exchange. According to Illich (Illich 1981: 23) it was Varro who introduced the same distinction in language. Mother tongue does not mean, nor has ever meant the vernacular. Catholic monks were the first to use it for the particular language they used in sermons. Speaking about the mother tongue Illich further writes, 'the term mother tongue, from its very first use, instrumentalize(d) everyday language in the service of an institutional cause. He further adds, 'quite suddenly and dramatically mother tongue acquired a strong meaning. It came to mean the language created by Luther in order to translate the Hebrew Bible, the language taught by schoolmasters to read that book, and then the

language that justified the existence of nation states' (Ibid: 28-29).

The native language is different from the mother tongue, 'a term categorized by allegiance to a particular tradition in an in-group out-group dichotomy' (Pattanayak 1981: 52). Native language, used in relation to a language of foreign origin, refers to an indigenous language. In a multilingual situation, native language may refer to the mother tongue differentiating it from the regional language.

Many find 'home language' as an appropriate substitute for mother tongue. Home language may be one or many. However, the language/s learnt or acquired without any formal learning are regarded as home languages in opposition to school language/s learnt through conscious formal training.

Again the first language need not always be the mother tongue. In a multilingual setting where children are supposed to learn a number of serially ordered languages, as in India which has adopted the three-language formula, the different languages are designated as first, second or third language.

Today, mother tongue may mean several things - the first language learnt by the child at home, the language of the parents, language of use, language spoken in the household, the language one knows best, the language which the state decides ought to be it's citizens first language, the language one speaks best when the census is conducted rather than as a child, the language with which one identifies himself emotionally, etc.

Discerning the meaning of the mother tongue is a very difficult task, indeed. As implied earlier, mother tongue has been interpreted differently in different parts of world. The purpose of this paper is to look at the many meanings in which the term mother tongue is understood in the world at large, in India and in Goa.

Mother Tongue in the Global Context

The United Nations has adopted the following definition of mother tongue - 'the language usually spoken in the individual's home in his early childhood, although not necessarily used by him at present' (Lieberson 1969: 291 cited in Romaine 1989:19). The UNESCO committee of experts convened to consider the language of education worldwide defined mother tongue as 'the language, which a person acquires in early years and which normally becomes his natural instrument of thought and communication'. It further stated, however, that the mother tongue 'need not be the language which his parents use; nor need it be the language he first learns to speak, since special circumstances may cause him to abandon this language more

or less completely at an early age' (UNESCO 1968: 689-690 cited in Fasold 1984: 293). The definition of mother tongue can vary from nation to nation and also within the same nation from time to time. In the United States censuses of 1910 and 1940 mother tongue was defined differently. While in 1910 and the subsequent census of 1920, the second-generation immigrant got classified according to the mother tongue of his foreign born parents, in 1940 the language spoken by the respondent himself was considered.

The Swiss census at least from 1950 defined mother tongue as 'the language in which the respondent thinks and which s/he masters best' (Levy 1964:261 cited in Arel 2002: 99). The definition provided by Finland in its 1940 and 1980 censuses is similar (McRae 1997: 83-84 cited in Arel 2002:99). Hungarian definition of the term 'mother tongue', in its census of 1890, is 'that language which you recognize as your own and which you enjoy most speaking' (Roth 1991: 142 cited in Arel 2002: 99). In the 1910 Hungarian census, instructions explicitly stated that there might be situations where 'the mother tongue of the child differs from that of the mother' (Van Gennep 1922: 109 cited in Arel 2002: 99-100). In the Prussian census mother tongue meant 'that language in which one is most fluent from childhood on and in which one thinks and also prays' (Kleeberg 1915: 67 cited in Arel 2002:100). Czechoslovakia, in its 1921 census using a hybrid category 'nationality (mother tongue) made it clear that mother tongue referred to the group one descended from, notwithstanding the current language behaviour (see Arel 2002:102). A few scholars also consider the language learnt without any formal training as defining the mother tongue.

There are communities in the Vaupes area of Columbia and Brazil, for example, where the marriages are exogamous in the sense that they cannot marry in one's own language group. The couple speak in their own language but understand each other's languages, as they are bilinguals in the language of the other. The groups are patrilineal; the fathers transmit their language to their children and the primary language or the mother tongue is the language of the father though the children may be fluent in the languages of their parents.

One can also find examples of cases where the first language learned or spoken may not necessarily be designated as the mother tongue. In South Africa, for instance, it is common to find white children growing up with Zulu Nannies and speaking Zulu even before they speak English or Afrikaans.

Pakistani speakers of Punjabi, residents of Britain, claim Urdu as their mother tongue and not Punjabi which is their spoken language at home.

There are other definitions of mother tongue, which rely on competence the language one knows best would be considered as one's mother tongue. There are also individuals who are more competent in one language but may consider another language, towards which he feels a stronger affective attachment as it was learned and used at home, as his mother tongue. It is the language that the individual identifies himself with.

In some cases, however, the identification may be external in the sense that others may recognize someone as having a particular mother tongue. This may or may not match the mother tongue, which the individual identifies himself with. 'Mother tongue reflects less the language of an individual than the language of the nation to whom the individual is supposed to belong' (Kertzer and Arel 2002: 27).

There are some who may also claim to have more than one mother tongue, especially those who may feel they are equally competent in two languages. Usually, however, censuses do not recognize the fact that someone may have more than one mother tongue.

Mother Tongue in India

Gandhi wrote of the mother tongue thus: 'I must cling to my mother tongue as to my mother's breast, in spite of its shortcomings. It alone can give me the life-giving milk' (cited in Verma 1995: 27). Clinging to the mother tongue is possible only after identifying one's mother tongue.

The successive censuses in India are quite equivocal in their definitions of the term mother tongue. While the 1872 census made no reference to the question of mother tongue, the subsequent census of 1881 and later from 1931-2001 posed a direct question on the mother tongue. The censuses of 1891, 1901, 1911, 1921 used the terms parent-tongue, language ordinarily used, and language ordinarily spoken in the household, language ordinarily used respectively in lieu of the term mother tongue. The 1881 census defined the term mother tongue as 'language spoken by the individual from the cradle'. The 1951 census also defined it 'as the language spoken from the cradle'. The instructions given to the enumerators in the 1961 census states 'Mother tongue is language spoken in the childhood by persons' mother. If the mother died in infancy write the language mostly spoken in the person's home in childhood' (Census of India, ccxLii, Vol. 1, Part 11c (ii) Language Tables).

The number of mother tongues returned at the 1961 census was 1652. The total number of mother tongues returned in 1961 and 1971 census was 3000. In 1981 the

number increased to 7000 while in 1991 it further increased to more than 10000. After linguistic rationalization and classification the mother tongue list reduced to 1576 in 1991.

The last census was in 2001, but the later figures are not considered, as the mother tongues with population of less than 10000 are not listed and details of mother tongues, which are subsumed under a major language, are not provided. The census do not take cognizance of mother tongues with a population of less than 10000 speakers and, in this way, with 'no official acknowledgement of their existence, they are left to disappear' (Annamalai 2001:86). In many cases mother tongues have ceased to be autonomous languages and have become a variety of another language. This happens due to 'the political decision of the state as well as the community's ambivalence between loyalty to the mother tongue and regional and national aspirations realizable through identification with Hindi' or another language (see Ibid: 134).

The 1652 mother tongues listed in the 1961 census are not all languages in the grammatical sense: they included caste names (Teli); names of religious sects (Haridasi); names of villages (Bilaspuria); regions or provinces (Gawari); etc. In the same census 2544 individuals declared Sanskrit as their mother tongue. The fact is that most of them use one or the other modern Indian languages as their first language. Declaring a certain language as their mother tongue is dependent on socio-political and economic pressures. For example, native speakers of Bhojpuri claim Hindi to be their mother tongue. The spoken language may be a dialectal variation and another language may be the dominant language, the language of power, functional importance and upward mobility. Some uprooted communities return the mother tongue of their ancestral land or of the community to which they belonged even when they have already lost their mother tongue. These responses do not provide us any clue to the definition of the term 'mother tongue' rather they can at best be considered an assertion of the group identity, as the speakers feel that these are identity tokens for their mother tongue.

The definition provided of the term 'mother tongue', in the 1961 and the following censuses, is quite problematic, especially in a country like India where majority are patrilocal families. In patrilocal families, it is the father's language that is considered important and is the dominant language, and the child acquires it in childhood. Instances abound where in the father may be an Oriya, mother a Maharastrian, speaking English to each other, but their own language to the child, and a nanny who could be speaking Hindi. The child could be using four languages before any formal training and to consider one language with precedence and report the mother's

tongue as the mother tongue would be erroneous.

In the modern era where there are not only inter-caste and inter-religious marriages but also marriages between individuals belonging to different nationalities and linguistic communities. An Indian girl marrying a German boy where some foreign language becomes the language of communication and interaction between the couple, identification of the mother tongue by the language of the mother does not seem to be a satisfactory criterion.

There are instances also of eminent writers in languages other than their mothers' languages. If R. K. Narayan, a Tamil speaker, writes in English and claims English to be his mother tongue based on his creative abilities and competence, it becomes difficult to reject his claim and may be that of others who might do the same.

Pattnayak writes, 'mother tongue' can be 'either seen as a super-ordinated language system or as an institution affiliating home languages which are self-sustained entities' (1981: 53). He adds, "'mother tongue' is both a socio-linguistic reality and a product of the mythic consciousness of a people. It provides social and emotional identity to an individual with a speech community (Ibid: 54). In another of his writings he speaks of mother tongue thus: "Places are not geographical concepts; they exist in people's consciousness. So does the concept of 'mother tongue'. It is not a language in the general sense of the word, neither is it a dialect. It is an identity signifier waiting to be explained" (1992) ([mother tongue\Terralingua Definition -- mother tongue.htm](#)).

To Dasgupta, mother tongue is 'the language name that a speaker offers to a census enumerator, a name that often marks identity rather than realities of linguistic usage' (Dasgupta 2001: 14).

In India, mother tongues are often politicized. Mallikarjun (2001) says that mother tongues, more often than not, are elevated to a superhuman and divine status and are literally worshiped. He cites examples from three states, to mention a few, to prove his point. In Tamilnadu, for instance, mother tongue is personified and adored with students in all government-aided schools singing in praise of Mother Tamil. 'Mother tongue becomes a rallying point for groups of people to unite and express their solidarity more as a political entity' (Mallikarjun 2001). Thus mother tongue, to many, is something very sacred as it is a part of their national heritage and it is their sacred duty to love and cherish their heritage.

Mother tongue in Goa

During the pre-liberation era many belonging to the elite section of Christians spoke Portuguese. Many of the elite Hindus identified themselves with Marathi and spoke Marathi. The commoners, however, both Hindu and Christians spoke Konkani. Today, due to the pre-colonial legacy and post-colonial conflicts, mother tongue has been understood differently by different sections of the Goan society. For most a mother tongue is the language spoken by them and their forefathers. It is the language spoken in the land that they have inhabited for long and one, which they consider their very own. There are others for whom it is the language in which their religious and literary traditions are found. There are a few who claim the language spoken in their homes as their mother tongue.

Thus in Goa, one encounters a variety of situations in respect to the mother tongue question where it is apparently difficult for other agencies, like the government, to identify an individual's mother tongue (This has tremendous implications for mother tongue medium of instruction encouraged by governments all over the world). I have listed some situations wherein only the individual himself or herself can identify his/her mother tongue/s:

- ◆ The father and the mother speak English to each other and to the child. They live amidst a Konkani speaking community and they claim Konkani as their mother tongue. What is the mother tongue of the child?
- ◆ Father's mother tongue is Bengali and mother's mother tongue is Konkani. The father speaks in Bengali to the child, while the mother speaks in Konkani. The child picks up both the languages simultaneously. What is the mother tongue of the child?
- ◆ Father claims his mother tongue to be Konkani and the mother claims her mother tongue to be English. The parents speak to the child in English. What is the mother tongue of the child?
- ◆ Father and mother speak to each other in Konkani and they claim their mother tongue to be Konkani but they speak to the child in English. What is the mother tongue of the child?
- ◆ Though father and mother are native speakers of a variety of Konkani, they prefer to talk to each other using English. But they speak to their child in that variety of Konkani sometimes, and speak in English at other times. What is the mother tongue of the child? Or does the child have two mother tongues?

- ◆ Father and mother are from Kerala. They speak to the child more in Konkani than in Malayalam. The child hardly knows Malayalam, yet claims it to be his mother tongue for reasons of maintaining his identity, etc. Can one have a mother tongue, which is hardly known to him?
- ◆ The child acquires Konkani at home but its use is so restricted that his competence in English is greater than the competence in Konkani. Can one have different mother tongues as one grows and masters other languages?
- ◆ Some claim the language of their religion and the language they have learnt in school and read regularly but one that is not widely used as a spoken language (that is Marathi) as their mother tongue. Should one speak the language regularly for it to be claimed as a mother tongue by individuals?
- ◆ There are others who claim their mother tongue to be Marathi when the only language they have ever spoken in their life is Konkani. Is it not necessary to speak a language to call it one's mother tongue?
- ◆ Muslim families speaking Hindi or Konkani at home claim Urdu as their mother tongue due to religious considerations. Can one claim a language to be his/her mother tongue for nonlinguistic reasons, such as caste, religion, region, profession and so on?
- ◆ The father and mother speak Portuguese and English to each other. They speak to the children in English. They have learnt Konkani from their environment or in schools and claim Konkani as their mother tongue. Could a language not learnt from parents be one's mother tongue?

Concluding Remarks

Thus mother tongue has been defined using a number of criteria. People use different criteria to identify a language as their 'mother tongue'. They are as follows: a) origin b) identification c) competence d) function e) religion. That means one may state one's language of origin, that is the language or languages first learned as one's mother tongue. Another may identify himself with a language or may claim a language as his mother tongue because he wants to be identified with a certain linguistic community. Again, another person might like to call the language he knows best as his mother tongue. Finally, there are people who would like to claim the language they use most as their mother tongue.

This means that one can have more than one mother tongue depending on the definition one makes use of. It also implies that a person's definition may change in his/her lifetime. The definition by identification means that a language little known or not at all known may be claimed as one's mother tongue. One may also claim a particular language as his/her mother tongue while that particular linguistic community may not accept the claim. Mother tongue definition needs to be revisited, especially in instances where it is defined in terms of origin, as at times parents and children do not have the same mother tongue. It is to be noted that mother tongue involves not merely certain characteristics, but relations to be negotiated, and relations depend on who has the power to define one's mother tongue. Identifying oneself with one language is not enough to call the language his/her mother tongue. One's relation with the language has to be validated by others belonging to that language group.

One experiences great difficulty in precisely understanding the term 'mother tongue' as used by different actors. The number of definitions provided by sociologists and linguists do not encompass the variety of meanings attributed to the term by different agencies. The socio-linguistic and political aspects of the term will engage the attention of the experts for a considerable time.

References

1. Annamalai, E. 2001. *Managing Multilingualism in India: Political and Linguistic Manifestations*. New Delhi: Sage Publications.
2. Arel, Dominique. 2002. 'Language Categories in Censuses: Backward- or Forward-Looking?' in David I. Kertzer and Dominique Arel (eds.): *Census and Identity: The Politics of Race, Ethnicity, and Language in National Censuses* (92-120). Cambridge: Cambridge University Press.
3. Dasgupta, Probal. 2001. 'Introduction by the Series Editor' in Annamalai, E. 2001. *Managing Multilingualism in India: Political and Linguistic Manifestations*. New Delhi: Sage Publications.
4. Fasold, Ralph. 1984. *The Sociolinguistics of Society*. Oxford: Basil Blackwell Ltd.
5. Illich, Ivan. 1981. 'Taught Mother Language and Vernacular Tongue' in D. P. Pattanayak: *Multilingualism and Mother-Tongue Education* (23). Delhi: Oxford University Press.
6. Kertzer, D. and Dominique Arel. (2002). 'Censuses, Identity Formation, and the Struggle for Political Power' in David I. Kertzer and Dominique Arel (eds.). *Census and Identity: The Politics of Race, Ethnicity, and Language in National Censuses*, pp.1-42. Cambridge: Cambridge University Press
7. Mallikarjun (2001 'Language According to Census of India 2001'. *Language in India*. (Ed.) Thirumalai, M. S. Vol.1: April.
8. Noronha, Frederick.1999.'Of Forked Tongues and the Mother Tongue', in Norman Dantas (ed.): *The Transforming of Goa* (43-52). Mapusa: The Other India Press.
9. Pattanayak, D. P. 1981. *Multilingualism and Mother-Tongue Education*. Delhi: Oxford University Press.
10. Pattanayak (1992) (\mother tongue\Terralingua Definition -- mother tongue.htm)
Romaine, Suzanne. 1989. *Bilingualism*. Oxford: Basil Blackwell Ltd.
11. Row Kavi. 1987. Sunday observer (January 1) cited in Noronha, Frederick 1999.'Of Forked Tongues and the Mother Tongue', in Norman Dantas (ed.): *The Transforming of Goa* (43-52). Mapusa: The Other India Press: 46
12. Verma, Shivendra, K. 1995. *Language in Education: Problems and Principles*. Madras: T. R. Publications

References

1. Annamalai, E. 2001. *Managing Multilingualism in India: Political and Linguistic Manifestations*. New Delhi: Sage Publications.
2. Arel, Dominique. 2002. 'Language Categories in Censuses: Backward- or Forward-Looking?' in David I. Kertzer and Dominique Arel (eds.): *Census and Identity: The Politics of Race, Ethnicity, and Language in National Censuses* (92-120). Cambridge: Cambridge University Press.
3. Dasgupta, Probal. 2001. 'Introduction by the Series Editor' in Annamalai, E. 2001. *Managing Multilingualism in India: Political and Linguistic Manifestations*. New Delhi: Sage Publications.
4. Fasold, Ralph. 1984. *The Sociolinguistics of Society*. Oxford: Basil Blackwell Ltd.
5. Illich, Ivan. 1981. 'Taught Mother Language and Vernacular Tongue' in D. P. Pattanayak: *Multilingualism and Mother-Tongue Education* (23). Delhi: Oxford University Press.
6. Kertzer, D. and Dominique Arel. (2002). 'Censuses, Identity Formation, and the Struggle for Political Power' in David I. Kertzer and Dominique Arel (eds.). *Census and Identity: The Politics of Race, Ethnicity, and Language in National Censuses*, pp.1-42. Cambridge: Cambridge University Press
7. Mallikarjun (2001 'Language According to Census of India 2001'. *Language in India*. (Ed.) Thirumalai, M. S. Vol.1: April.
8. Noronha, Frederick.1999.'Of Forked Tongues and the Mother Tongue', in Norman Dantas (ed.): *The Transforming of Goa* (43-52). Mapusa: The Other India Press.
9. Pattanayak, D. P. 1981. *Multilingualism and Mother-Tongue Education*. Delhi: Oxford University Press.
10. Pattanayak (1992) (\mother tongue\Terralingua Definition -- mother tongue.htm)
Romaine, Suzanne. 1989. *Bilingualism*. Oxford: Basil Blackwell Ltd.
11. Row Kavi. 1987. Sunday observer (January 1) cited in Noronha, Frederick 1999.'Of Forked Tongues and the Mother Tongue', in Norman Dantas (ed.): *The Transforming of Goa* (43-52). Mapusa: The Other India Press: 46
12. Verma, Shivendra, K. 1995. *Language in Education: Problems and Principles*. Madras: T. R. Publications

ATTITUDE TOWARDS MARRIAGE : AN AGE AND GENDER BASED STUDY IN GOA

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The present study explores the attitude towards marriage among 60 individuals divided into 3 groups of 20 individuals each having equal number of males and females. The 3 group were teenagers, unmarried adults and married couples. The subjects were administered the Marriage Attitude Scale devised by Pramod Kumar. This study points out that teenagers were more positive in their attitude towards marriage as compared to the other 2 groups. Gender comparisons revealed that females were more positive in their attitude towards marriage.

Introduction

Marriage is a journey towards an unknown destination, the discovery that people must share not only what they don't know about each other but what they don't know about themselves. Marriage is an intimate partnership of love that is spiritual, emotional and physical. Rapid urbanisation and mobility of the population in the recent times are transforming the traditional structure of the society [2]. Landis (1954) observes "Marriage and Family are not optional, they are necessary. They meet man's deepest need" [3]. Almost every individual or society has traditional attitudes about marriage and all the attitudes differ in many cases. Each person has his own attitude about his partner, whom they choose to live their life together with. Attitude plays an important role towards marriage.

People marry for various reasons, but many believe that young couples should only marry when they feel a love that is intense, romantic and passionate. Couples today seem to be rejecting the adult roles conferred by marriage. They no longer need the institution of marriage to give them freedom and independence. They want the romance, an excitement of their courtship to continue into marriage and see no need to change their behaviour or attitude [4].

Attitude and behaviour are woven into the fabric of daily life. The majority of people still seem to want to have a loving relationship with one person which will last for life. To many, it comes as a shock if they expect to marry in their 20's and find themselves unmarried at the age of 30. Traditionally, society was mainly interested in maintaining the stability of the institution [1].

Objectives:

- To measure the attitude towards marriage of people from different age groups i.e. teenagers, unmarried adults and married couples.
- To check if gender difference exist with respect to attitude towards marriage.

Methodology

Sample

The study was conducted on 60 individuals, comprising teenagers (13-19 years), unmarried adults (20-30 years) & married couples. Each group consisted of 20 individuals. The sample chosen were Christians, Hindus as well as Muslims residing in Goa.

Tool

The marriage attitude scale devised by Pramod Kumar was used for the study to assess the attitude of a person towards marriage. The scale consists of 38 statements. The individual has to encircle 'yes' if he/she agrees with the statement, 'No' if he/she is against it and '?' if he/she is doubtful about the statement.

Data Collection Procedure

Rapport was established with the sample and then the marriage attitude scale was administered to them individually. Proper instructions were given to the individuals.

Data Analysis

The data was collected and scored according to the scoring procedure. Total score of marriage attitude of 3 groups was found and its mean calculated. The corresponding interpretation of the score was also specified (as seen in the Table 1). Gender differences in attitude towards marriage in each of the 3 groups was also obtained. Based on the interpretation of scores, percentage of subjects experiencing positive, moderate and negative attitude was found (Table 2).

Results and Discussions

Table 1 shows the total marriage attitude score of teenagers, unmarried, adults and married couples along with its mean. Comparing the 3 groups, it was found that the teenagers had a more positive attitude than the other two groups. This could probably be due to the fact that teenagers are in the period where they are attracted to the opposite sex members and thus their outlook towards relationships and marriage in particular, is very positive. Also, they have not yet gained the maturity to realize the challenges associated with *marriage and maintaining relationships*.

With respect to gender differences, it was found that in the group of teenagers, males had a more positive attitude than females (86.7>78.9). This trend in the results could be attributed to the fact that girls still display a more conservative attitude towards marriage and sex than boys do. Also boys express their interest in dating and desire to establish close personal relationships with girls more openly than girls. In case of unmarried adults results were opposite. Females seem to have a more positive attitude towards marriage than males (77.6>71.8). Generally, females in this age group are under the pressure of settling down. Some might have already selected a partner while others may be on the lookout for an ideal partner. Males on the other hand are still engrossed in building or establishing their career. This could probably explain why the unmarried females were more positive in their attitude as compared to their counter parts.

With regards to married couples, although females showed a more positive attitude as compared to males, the difference can be considered as negligible (80.3>79.3). Every couple enters marriage with a number of implicit and expectations about the other and their relationship but in the due course of time with appropriate adjustment and sacrifices they overcome challenges and difficulties and usually share a successful relationship. Thus more or less married couples tend to have similar attitudes towards marriage.

Conclusion

The present investigation aimed to study the differences in attitudes towards marriage among teenagers, unmarried adults and married couples as well as to find out if gender differences existed among the 3 groups.

In the context of the obtained results and discussion, this study leads to the following conclusion. Teenagers had a more positive attitude towards marriage than the unmarried adults and married couples. Study on gender comparison revealed that among teenagers, males felt more positive about marriage as compared to females. Whereas among the unmarried adults and the married couples, females held a more positive attitude as compared to males.

The finding of the present study although useful in understanding, specially, the youth of today and guiding them appropriately, cannot be generalized due to the size and nature of the samples.

Table No. 1 : MARRIAGE ATTITUDE SCORE OF THE 3 GROUP

SR. NO.	TEENAGERS (13-18 years)		UNMARRIED ADULT (20-30 years)		MARRIED COUPLES	
	Score	Interpretation	Score	Interpretation	Score	Interpretation
1	75	MODERATE	83	POSITIVE	77	MODERATE
2	96	POSITIVE	64	MODERATE	89	POSITIVE
3	95	"	84	POSITIVE	81	"
4	84	"	73	MODERATE	76	MODERATE
5	84	"	72	"	86	POSITIVE
6	91	"	84	"	88	"
7	100	"	65	POSITIVE	85	"
8	70	MODERATE	80	MODERATE	67	MODERATE
9	84	POSITIVE	92	"	91	POSITIVE
10	81	"	76	POSITIVE	96	"
11	78	MODERATE	70	MODERATE	81	"
12	89	POSITIVE	69	"	82	"
13	74	MODERATE	77	"	78	MODERATE
14	88	POSITIVE	62	"	67	"
15	91	"	64	"	63	"
16	67	MODERATE	71	"	73	"
17	87	POSITIVE	88	POSITIVE	78	"
18	52	NEGATIVE	87	"	77	"
19	78	MODERATE	58	NEGATIVE	73	"
20	85	POSITIVE	75	MODERATE	88	POSITIVE
TOTAL	1649		1494		1596	
AVG.	82.45		74.7		79.8	

SCORE

INTERPRETATION

1. 38-60

NEGATIVE

2. 61-80

MODERATE

3. 81-120

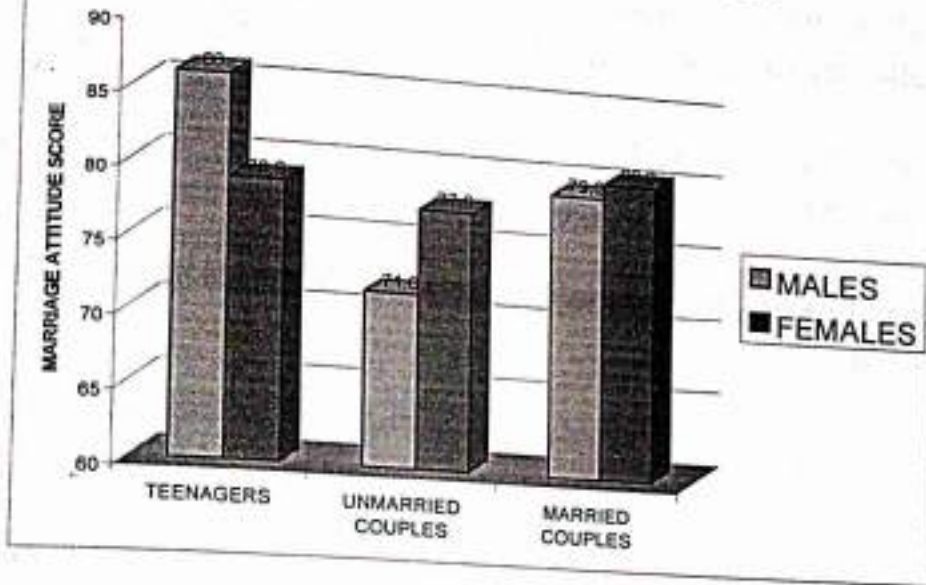
POSITIVE

**Table No. 2: PERCENTAGE OF INDIVIDUALS
SHOWING DIFFERENT ATTITUDES TOWARDS MARRIAGE.**

GROUPS	POSITIVE	MODERATE	NEGATIVE
TEENAGERS (13-18 years)	65%	30%	5%
UNMARRIED ADULT (20-30 years)	30%	65%	5%
MARRIED INDIVIDUALS	50%	50%	----

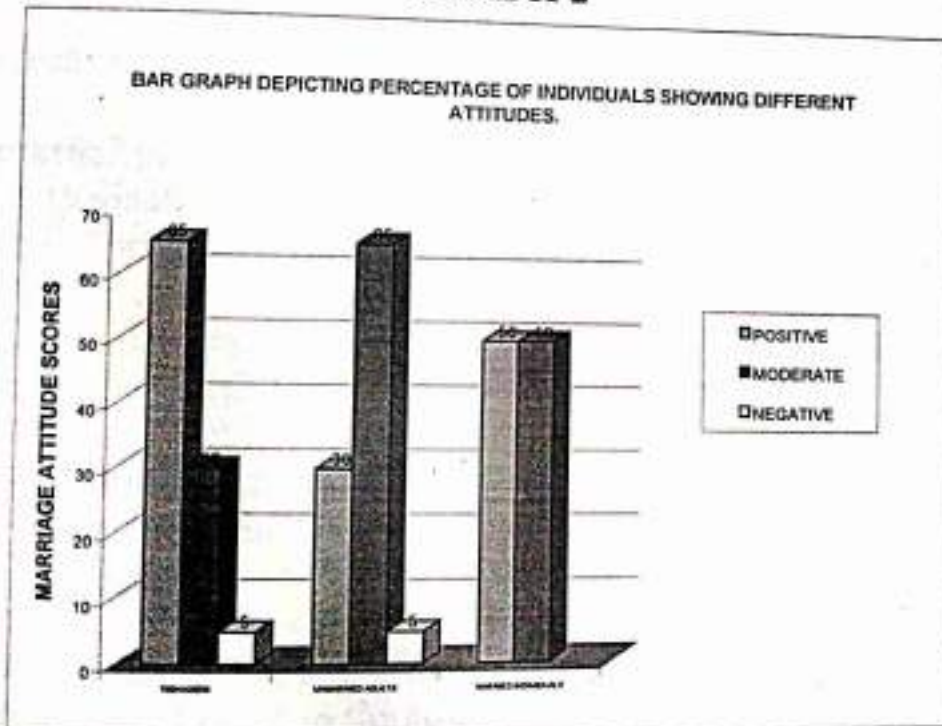
GRAPH 1

BAR GRAPH DEPICTING GENDER DIFFERENCES IN MARRIAGE ATTITUDE SCORE AMONG THE 3 GROUPS



GRAPH 2

BAR GRAPH DEPICTING PERCENTAGE OF INDIVIDUALS SHOWING DIFFERENT ATTITUDES.



References

1. Haber, Audrey. 1984. *Psychology of Adjustment*; The Dorsey Press.
2. Jacob, Mani. 2002 (ed) *Resource Book for Value Education*
New Delhi : Institute of Value Education.
3. Landis, P.H. 1954. *Your Marriage and Family Life*.
New York : Mc Graw Hill.
4. *The Encyclopedia of Personal Relations*; Marshall Cavendish Corporation,
1990 Volume 7.

VIRTUAL PRIVATE NETWORK

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The term "VPN" or Virtual Private Network, is used to describe a broad set of problems and "solutions", when the objectives themselves have not been properly articulated. This confusion has resulted in a situation where the popular trade press, industry pundits, and vendors alike generally use the term "VPN" as an offhand reference for a set of different technologies. This paper attempts to provide a common sense definition of a VPN, the various components of a VPN and an overview of different approaches to building them.

1. Introduction

There is much confusion about what the technology called Virtual Private Network or VPN actually is and how it is different from traditional dial-up network. The simplest method of attempting to arrive at a definition for VPN is to look at each word in the acronym individually and then subsequently put them together in a meaningful manner.

Network : A network consist of number of devices which can communicate with each other and can successfully transmit and receive data amongst themselves.

Private : The term " private" is fairly straightforward , and is intricately related to the concept of "virtualisation" insofar as VPN's are concerned A means of expressing the definition of "private" is through its antonym "public". A "public" is one which is openly accessible, and is managed within the terms and constraints of a common public resource. By contrast, a "private" facility is one where access is restricted to a defined set of entities and third parties cannot gain access.

Virtual : "Virtual" means simulated; performing the functions of something that isn't really there. The " private" network has no corresponding "private" physical communication system. Instead, the "private" network is a virtual creation, which has no physical counterpart. The virtual communication between two (or more) devices is due to fact that the devices, which are not participating in the virtual communication, are not privy to the content of the data, and they are also altogether unaware of the private relationship between the virtual peers. The shared network infrastructure could, for example, be the global Internet.

The combinations of these terms produces VPN - a private network, where the privacy is introduced by some method of virtualization. Perhaps, the most straightforward and strict definition, is:
A VPN is a communications environment in which access is controlled to permit peer connections only within a defined community of interest, and is constructed through some form of partitioning of a common underlying communications medium, where this underlying communications medium provides services to the network on a non-exclusive basis [1].

2. Issues to be handled by VPNs.

There are a number of issues to be handled by a VPN to function successfully.

2.1 Security

The major concerns with Virtual Private Networks is that they still don't offer the same level of security as private networks. An attempt to remedy this lack of security is heightened use of encryption, secure key exchange, session and per packet authentication, passwords, digital certificates etc [2].

2.2 Scalability

This is a very important aspect of Virtual Private Network as, if a company invests the time and money in a system they do not want to outgrow its capacity within a few years. Scaling a network can work both ways, up and down but it is usually to scale upwards since when the network was being developed it was likely the system's full resources were made use of.

2.3 Performance and Quality of Service (QoS)

Quality of Service is the ability to maintain a level of performance in a system that is exchanging data. The idea behind Quality of Service is that transmission and error rates can be measured and to some extent be guaranteed. This is a major issue because Internet based VPNs are being used increasingly for transmission of voice and video, which depend on high QoS.

2.4 Prevention of Denial of Service Attacks

Denial of Service Attacks occur when a user is denied services they are entitled for. These attacks result in the paralysis of either part of the network or the entire VPN. As VPNs exist on a public network, traffic from anywhere can make its way down the receive path of a VPN tunnel. A few ways to prevent this problem are, the first being a filter that would eliminate any non-VPN traffic or assigning a bandwidth reservation service specifically for that network's traffic. [6]

2.5 Management

VPN service providers must update their management tools quite frequently in order to monitor the customer's VPN effectively. Management tools are simply devices that aid the manager in looking after the network. Having the proper resources to manage a VPN is very important as configuring and maintaining things like user authentication and access rights can be very time consuming and therefore very costly. Being able to eliminate some of the responsibilities of the network managers and being able to assign them to other positions saves the company time and money, as they are not constantly investing in new equipment and retraining staff. [3]

2.6 Encryption and User Authentication

Encryption can be regarded as a method for altering data into a form that is unusable by anyone than the intended recipient, who has the means necessary to decrypt it. User Authentication determines who is eligible to access a network and is often paired with access rights, which determine the conditions of a user's authentication (i.e. what files can be read or written over). RADIUS (Remote Access Dial-Up Service), Digital Certificates or Digital Signatures are commonly used authentication system.

3. Tunneling

Most VPNs rely on tunneling to create a private network that reaches across the Internet. Essentially, tunneling is the process of placing an entire packet within another packet and sending it over a network. The protocol of the outer packet is understood by the network and both points, called tunnel interfaces, where the packet enters and exits the network.

Tunneling requires three different protocols:

Carrier protocol: The protocol used by the network that the information is traveling over

Encapsulating protocol: The protocol (GRE, IPSec, L2F, PPTP, L2TP) that is wrapped around the original data.

Passenger protocol: The original data (IPX, NetBeui, IP) being carried.

Tunneling has amazing implications for VPNs. For example, you can place a packet that uses a protocol not supported on the Internet (such as NetBeui) inside an IP packet and send it safely over the Internet. Or you could put a packet that uses a private (non-routable) IP address inside a packet that uses a globally unique IP address to extend a private network over the Internet.

Tunneling: Site-to-Site
In a site-to-site VPN, GRE (generic routing encapsulation) is normally the encapsulating protocol that provides the framework for how to package the passenger protocol for transport over the carrier protocol, which is typically IP-based. This includes information on what type of packet you are encapsulating and IPsec in tunnel mode is sometimes used as the encapsulating protocol. IPsec works well on both remote-access and site-to-site VPNs. IPsec must be supported at both tunnel interfaces to use

Tunneling: Remote-Access
In a remote-access VPN, tunneling normally takes place using PPP. Part of the TCP/IP stack, PPP is the carrier for other IP protocols when communicating over the network between the host computer and a remote system. Remote-access VPN tunneling relies on PPP.

The tunneling protocols and the basic tunneling requirements
Because they are based on the well-defined PPP protocol, Layer 2 protocols (such as PPTP and L2TP) inherit a suite of useful features. These features and their Layer 3 counterparts address the basic VPN requirements as outlined below.

User Authentication : Layer 2 tunneling protocols inherit the user authentication schemes of PPP, including the EAP methods discussed below. Many Layer 3 tunneling schemes assume that the endpoints were well known (and authenticated) before the tunnel was established. An exception to this is IPsec ISAKMP negotiation, which provides mutual authentication of the tunnel endpoints. (Note that most IPsec implementations support machine-based certificates only, rather than user certificates. As a result, any user with access to one of the endpoint machines can use the tunnel. This potential security weakness can be eliminated when IPsec is paired with a Layer 2 protocol such as L2TP.)

Token card support: Using the Extensible Authentication Protocol (EAP), Layer 2 tunneling protocols can support a wide variety of authentication methods, including one-time passwords, cryptographic calculators, and smart cards. Layer 3 tunneling protocols can use similar methods; for example, IPsec defines public key certificate authentication in its ISAKMP/Oakley negotiation.

Dynamic address assignment : Layer 2 tunneling supports dynamic assignment of client addresses based on the Network Control Protocol (NCP) negotiation mechanism. Generally, Layer 3 tunneling schemes assume that an address has

already been assigned prior to initiation of the tunnel. Schemes for assignment of addresses in IPSec tunnel mode are currently under development and are not yet available.

Data Compression : Layer 2 tunneling protocols support PPP-based compression schemes. For example, the Microsoft implementations of both PPTP and L2TP use Microsoft Point-to-Point Compression (MPPC). The IETF is investigating similar mechanisms (such as IP Compression) for the Layer 3 tunneling protocols.

Data Encryption : Layer 2 tunneling protocols support PPP-based data encryption mechanisms. Microsoft's implementation of PPTP supports optional use of Microsoft Point-to-Point Encryption (MPPE), based on the RSA/RC4 algorithm. Layer 3 tunneling protocols can use similar methods; for example, IPSec defines several optional data encryption methods which are negotiated during the ISAKMP/Oakley exchange. Microsoft's implementation of the L2TP protocol uses IPSec encryption to protect the data stream from the client to the tunnel server.

Key Management : MPPE, a Layer 2 protocol, relies on the initial key generated during user authentication, and then refreshes it periodically. IPSec explicitly negotiates a common key during the ISAKMP exchange, and also refreshes it periodically.

Multi-protocol support : Layer 2 tunneling supports multiple payload protocols, which makes it easy for tunneling clients to access their corporate networks using IP, IPX, NetBEUI, and so forth. In contrast, Layer 3 tunneling protocols, such as IPSec tunnel mode, typically support only target networks that use the IP protocol.

Conclusion

VPN services allow users or corporations to reliably and securely connect to remote servers, branch offices or to other companies over public and private networks. In all of these cases, the secure connection across appears to the user as a private network communication -- despite the fact that this communication occurs over a public internetwork. VPN technology is designed to address issues surrounding the current business trend toward increased telecommuting and widely distributed global operations, where workers must be able to connect to central resources and where businesses must be able to communicate with each other efficiently.

This paper provides an overview of virtual private networking, and describes the basic requirements of useful VPN technologies -- user authentication, address management, data encryption, key management, and multi-protocol support. Every VPN solution needs to address the technological issues cited above and provide the flexibility to address business issues like network interoperability, rich application integration, and infrastructure transparency. Organizational infrastructure decisions need to be made in a manner that empowers client access to local connections and productivity. By using a full featured network operating system on standard open systems, organizations can provide reliable communications in an easy, secure, and economical way and provide a more programmable networking infrastructure to meet the challenges of tomorrow.

References

1. "Virtual Private Networks" Second Edition. Erwin M., Scott C. & Wolfe P. O'Reilly 1999.
2. www.nethandbook.com
3. www.ber.com/seminars/courseinfo/vpn.asp
4. www.webproforum.com/vpn/index.html
5. www.firstvpn.com/paper
6. www.wkmm.com/newsite/wkmmnota
7. <http://msdn.microsoft.com/workshop/server/feature/vpnovw.asp>

Significance of Case Study for Management Students

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The article discusses how to analyze a case in a systematic and logical fashion, beginning with the identification of internal strengths and weaknesses and moving on to the environmental opportunities and threats. The analysis should end with recommendations which emerge as a result of the thorough study of the case.

In today's business world we find that managers spend 90% of their time in interacting with people and making decisions at work. So it is imperative for a management student to get him/herself familiarized with the case study approach.

A case study presents an account of what happened to a business or industry over a number of years. It chronicles the events that managers had to deal with, such as changes in the competitive environment, and charts the managers' response, which usually involves changing the business- or corporate-level strategy.

Cases prove valuable for several reasons as explained by Easton (1982). Firstly, cases provide an insight into organizational problems. In a relatively short period of time, the student will learn to appreciate and analyze the problems faced by many different companies.

Secondly, cases illustrate what has been learnt in the classroom. The meaning and implication of this information are made clearer when they are applied to case studies. The theory and concepts help reveal what happens in the companies studied and allows the student to evaluate the solutions to deal with the problems. Top managers enjoy the thrill of testing their problem-solving abilities in the real world. It is important to remember, after all, that no one knows what the right answer is. All that managers can do is to make the best guess. In fact, managers say repeatedly that they are happy if they are right only half the time in solving strategic problems. Management is an uncertain game, and using cases to see how theory can be put into practice is one way of improving one's skills of diagnostic investigation.

Thirdly, case studies provide an opportunity to participate in class and to gain

experience in presenting one's ideas to others. The faculty may sometimes call on students as a group to identify what is going on in a case and through classroom discussion the issues in and solutions to the case problem will emerge. In such a situation, the student will have to organize his/her views and conclusions so that they can be presented to the class. Within the classroom students will have to debate while presenting their views on the case study for the the others (besides the presenters) to accept their conclusion . This is how decisions are made in the actual business world.

The faculty may also assign to an individual, but more commonly to a group, to analyze the case before the whole class. The individual or group probably will be responsible for a thirty- to forty-minute presentation of the case to the class. That presentation must cover the issues involved, the problems facing the company, and a series of recommendations for resolving the problems. The discussion then will be thrown open to the class, and one will have to defend his/her ideas. Through such discussions and presentations, the student will experience how to convey one's ideas effectively to others. Remember that a great deal of managers' time is spent in these kinds of situations, presenting their ideas and engaging in discussion with other managers, who have their own views about what is going on. Thus, the experience in the classroom will be more or less similar to the actual process of what goes on in a business setting.

When students work in groups to analyze case studies, they will learn about the group process involved in working as a team. While working in groups, it is very often seen that scheduling time and allocating responsibility for the case analysis to group members is a difficult task. There are always group members who shirk their responsibilities and group members who are so sure of their own ideas that they try to dominate the group's analysis. Most business negotiations also take place in groups; therefore, it is best if the student has a feel about these problems now.

STEPS

As just mentioned, the purpose of the case study is to enable one to apply the concepts learned while analyzing the issues facing a specific company. To analyze a case study, therefore, one must examine closely the issues with which the company is confronted. Most often the student will need to read the case several times - once to grasp the overall picture of what is happening to the company and then several times more to discover and grasp the specific problems [1].

Generally, a detailed analysis of a case study as highlighted by Easton (1982) should include eight areas:

1. The history, development, and growth of the company over time.
2. The identification of the company's internal strengths and weaknesses.

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3. The nature of the external environment surrounding the company.
 4. A SWOT analysis.
 5. The kind of corporate-level strategy pursued by the company.
 6. The nature of the company's business-level strategy.
 7. The company's structure and control systems and how they match its strategy.
 8. Recommendations.

A summary of the steps taken to analyze the case material for each of the eight points is given below.

1. Analyzing the company's history, development, and growth.

A convenient way to investigate how a company's past strategy and structure affect it in the present is to chart the critical incidents in its history - that is, the events that were the most unusual or the most essential for its development into the company it is today. Some of the events have to do with its founding, its initial products, how it makes new-product market decisions, and how it developed and chose functional competencies to pursue. Its entry into new businesses and shifts in its main lines of business are also important milestones to consider.

2. Identify the company's internal strengths and weaknesses.

Once the historical profile is completed, one can begin the SWOT analysis. Use all the incidents cited in step one to develop an account of the company's strengths and weaknesses as they have emerged historically. Examine each of the value creation functions of the company, and identify the functions in which the company is currently strong and currently weak. Some companies might be weak in marketing; some might be strong in research and development. Make lists of these strengths and weaknesses.

3. Examining the external environment.

The next step is to identify environmental opportunities and threats. Here you should apply all information you have learned on industry and macroenvironments, to analyze the environment the company is confronting. Of particular importance at the industry level is Porter's five forces model and the stage of the life cycle model. Which factors in the macroenvironment will appear salient depends on the specific company being analyzed. However, use each factor in turn (for example, demographic factors) to see whether it is relevant for the company in question.

After completing this analysis the student would have both an analysis of the company's environment and a list of opportunities and threats.

4. Evaluating the SWOT analysis.
Having identified the company's external opportunities and threats as well as its internal strengths and weaknesses, you need to consider what your findings mean. That is, the need to balance strengths and weaknesses against opportunities and threats. Is the company in an overall strong competitive position? Can it continue to pursue its current business- or corporate-level strategy profitably? What can the company do to turn weaknesses into strengths and threats into opportunities? Can it develop new functional, business, or corporate strategies to accomplish this change? Never merely generate the SWOT analysis and then put it aside. Because it provides a brief summary of the company's condition. A good SWOT analysis is the key to all the analyses that follow.

5. Analyzing corporate-level strategy.
To analyze a company's corporate-level strategy, one first needs to define the company's mission and goals. Sometimes the mission and goals are stated explicitly in the case, at other times you will have to infer them from available information. The information you need to collect in order to find out the company's corporate strategy includes factors such as its line(s) of business and the nature of its subsidiaries and acquisitions. It is important to analyze the relationship among the company's businesses. Do they trade or exchange resources? Are there gains to be achieved from synergy? Alternatively, is the company just running a portfolio of investments? This analysis should enable you to define the corporate strategy that the company is pursuing (for example, related or unrelated diversification or a combination of both) and to conclude whether the company operates in just one core business. Then, using the SWOT analysis, debate the merits of this strategy. Is it appropriate, given the environment the company is in? Could a change in corporate strategy provide the company with new opportunities or transform a weakness into strength? For example, should the company diversify from its core business into new businesses?

Other issues should be considered as well. How and why has the company's strategy changed over time? What is the claimed rationale for any changes? Often it is a good idea to analyze the company's businesses or products to assess its situation and identify which divisions contribute the most to or detract from its competitive advantage. It is also useful to explore how the company has built its portfolio over time. Did it acquire new businesses, or did it venture on its own? All these factors provide clues about the company and indicate ways of improving its future performance [2].

6. **Assessing business-level strategy.**

Once the company's corporate-level strategy and SWOT analysis is done, the next step is to identify the company's business-level strategy. If the company is a single-business company, its business-level strategy is identical to its corporate-level strategy. If the company is in many businesses, each business will have its own business-level strategy. Identify the company's generic competitive strategy - differentiation, low cost, or focus - and its investment strategy, given the company's relative competitive position and the stage of the life cycle. The company may also market different products using different business-level strategies. For example, it may offer a low-cost product range and a line of differentiated products. Be sure to give a full account of a company's business-level strategy to show how it competes.

The SWOT analysis is especially important at this point if the industry analysis, particularly Porter's model, has revealed the threats to the company from the environment. Can the company deal with these threats? How should it change its business-level strategy to counter them? To evaluate the potential of a company's business-level strategy, you must first perform a thorough SWOT analysis that captures the essence of its problems.

Once this analysis is completed, one will have a full picture of the way the company is operating and be in a position to evaluate the potential of its strategy.

7. **Analyze structure and control systems.**

The aim of this analysis is to identify what structure and control systems the company is using to implement its strategy and to evaluate whether that structure is the appropriate one for the company. Different corporate and business strategies require different structures. For example, does the company have the right level of vertical differentiation (for instance, does it have the appropriate number of levels in the hierarchy or decentralized control?) or horizontal differentiation (does it use a functional structure when it should be using a product structure?)? Similarly, is the company using the right integration or control systems to manage its operations? Are managers being appropriately rewarded? Are the right rewards in place for encouraging cooperation among divisions? These are all issues that should be considered.

In some cases there will be little information on these issues, whereas in others there will be a lot. Obviously, in analyzing each case the student should gear the analysis toward its most salient issues. For example, organizational conflict, power, and politics will be important issues for some companies. Try to analyze why problems in these areas are occurring. Do they occur because of bad

strategy formulation or because of bad strategy implementation?

Organizational change is an issue in many cases because the companies are attempting to alter their strategies or structures to solve strategic problems. Thus, as a part of the analysis, he/she might suggest an action plan that the company in question could use to achieve its goals. For example, one might list in a logical sequence the steps the company would need to follow to alter its business-level strategy from differentiation to focus.

8. Making recommendations

The last part of the case analysis process involves making recommendations based on your analysis. Obviously, the quality of these recommendations is a direct result of the thoroughness with which the student prepared the case analysis. The work put into the case analysis will be obvious to the faculty from the nature of your recommendations. Recommendations are directed at solving whatever strategic problem the company is facing and at increasing its future profitability. The recommendations should be in line with the analysis; that is, they should follow logically from the above mentioned steps. For example, the recommendation generally will center on the specific ways of changing functional, business, and corporate strategy and organizational structure and control to improve business performance. The set of recommendations will be specific to each case, and so it is difficult to discuss these recommendations here. Such recommendations might include an increase in spending on specific research and development projects, a change from a strategy of unrelated to related diversification, an increase in the level of integration among divisions by using task forces and teams, or a move to a different kind of structure to implement a new business-level strategy. Again, make sure the recommendations are mutually consistent and are written in the form of an action plan. The plan might contain a time table that sequences the actions for changing the company's strategy and a description of how changes at the corporate level will necessitate changes at the business level and subsequently at the functional level

CONCLUSION

After following all these stages, the student will have performed a thorough analysis of the case and will be in a position to join in the class discussion or present his/her ideas to the class, depending on the format used by the faculty. Remember, that the analysis should be tailored to suit the specific issue discussed in the case. In some cases, it might be required to completely omit one of the steps in the analysis because it is not relevant to the situation one is considering. The student must be sensitive to the needs of the case and not apply the framework discussed above blindly. The framework is meant only as a guide that one might use to do a successful analysis.

References

1. Easton, G. 1982. Learning from case studies, Prentice-Hall : London
2. Spurr, I, Forester, J & Shaw, H. 1987, Business Case Studies: An integrated skills approach, Pitman Publishing: London.