

An aerial photograph of a lush green island, likely Goa, with a blue coastline and a yellow background. The island is covered in dense green forest and has a blue coastline. The text is overlaid on the image.

A BETTER GOA

REVIEWING THE PAST,
REIMAGINING THE FUTURE

LUIZINHO FALEIRO

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REIMAGINING THE FUTURE

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Published by
Dr. Francisco Luis Gomes Memorial Trust
Luchel, Borda, Margao - Goa



Dedicated to

*The children of this land and
the generations that will come so
that they can live in a better Goa*



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Dr. Francisco Luis Gomes Memorial Trust
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Dudhsagar Falls:
Majestic and eternally flowing

An aerial photograph of a vast, dense forest covering a mountain. The forest is a mix of various shades of green, indicating different types of trees and vegetation. The mountain slope is steep, and the forest appears to be continuous across the entire visible area. In the lower right corner, a thin, light-colored road or path is visible, winding through the forest. The sky at the top of the image is overcast with grey clouds.

PREFACE

“If there is no struggle, there is no progress. Those who profess to favour freedom, and yet depreciate agitation, are men who want crops without ploughing up the ground. They want rain without thunder and lightning. They want the ocean without the awful roar of its many waters. This struggle may be moral one; or it may be a physical one; or it may be both moral and physical; but it must be a struggle.”

– FREDERICK DOUGLASS

TECTONIC SHIFTS THAT SHAPED GOA

An introspection and a vision
for the land that we call our own

In my lifelong quest for a better Goa I have been particularly impressed with the analysis of a resurgent Goa, yet troubled on witnessing agitations in every corner of the land, which I view as manifestations of a crisis of identity of Goa born out of the alienation of Goans in Goa and emerging out of changing land and demographic patterns.

Goa's landmass, sandwiched between the Arabian Sea on the West and the Sahayadri Range of mountains on the East, is a sliver of land that shares its borders with Maharashtra and Karnataka. Today that land is a brand, recognised across the world and celebrated in the country, but one that has undergone various tectonic shifts of geography, political power, influence and development.

Shrouded in myths and legends, Goa's first tectonic shift of geography, power and influence was the fabled mythological 'Parashuram Kshetra', wherein Lord Parashuram shot seven arrows over the waters of the Arabian Sea to roll back the waters and raise the land from the foot of the Sahayadrian range to the points where the seven arrows struck the sea. However, the actual geo-history dates back to 12,000 years ago, which chronicles a violent tectonic movement raising the land mass from the seabed to about 600 meters. This was roughly the altitude of the Sahayadrian range, which gave birth to the most fertile land leading to prosperous agricultural practices, thereby attracting various invaders and dynasties in pursuit of agricultural products, spices and more.

From the earliest of times, many tribes settled in this land, drawn to it mainly because of its fertility that in an agrarian economy of the past was the wealth creator.

Today, these 3,702 square kilometres, that today make up the geographical Goa, have for centuries been envied by kings, emperors, invaders who have fought wars to conquer it and rule over it. Recorded history indicates that the land never had its own rulers but was always annexed to be part of another kingdom. Even the Portuguese came to Goa because of spices. They traded in various other items also, but what attracted to this land were the spices. Through the centuries, the tribes and the conquerors, all contributed to Goa's culture and identity. The last conquerors, the Portuguese, who came in 1510 and stayed till 1961 making theirs the longest foreign domination, ruled for 450 years and sowed their culture into this land.

Historians and writers, who happened to come to Goa, have written beautifully about the land and the people. Ibn Battuta, who came to this land in the mid-14th Century not just speaks of the land, but of the people. His first impression of Goa is of its people, and he wrote: 'After some days we came to the island of Sindabur, in the interior of which are six and thirty villages. By this we passed, however, and dropped anchor at a small island near it, in which is a temple and a tank of water. On this island we landed, and here I saw a Jogee leaning against the wall of the temple, and placed between two idols; he had some marks about him of a religious warfare. I addressed him, but he gave me no answer. We looked too, but could see no food near him. When we looked at him, he gave a loud shout, and a coconut fell upon him from a tree that was there. This nut he threw to us: to me he threw ten dinars, after I had offered him a few, of which he would not accept.'

Centuries later, Richard Burton who in his book *Goa and the Blue Mountains* published in 1851 has very few complimentary things to say about Goa, turned poetic as he left the shores and wrote: 'Adieu, fair land, deep silence reigns/O'er hills and dales and fertile plains;/Save when the soft and fragrant breeze/Sighs through the groves of tufted trees;/Or the rough breakers' distant roar,/Is echoed by the watery shore./Whilst gazing on the lovely view/How grating sounds the word 'adieu'!

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Goa has been described variously and at different times. At the height of the Portuguese period, in the 16th and 17th Centuries, one term that gained currency to describe the land was 'Goa Dourada', which translates to 'Golden Goa'. It of course was coined by the Portuguese who sought to encapsulate in a few words Goa's wealth, its beauty, and its importance within the Portuguese Empire. It was historically, perhaps Goa's richest period, a time when the land had a number of firsts that it could boast of. Goa had the first modern university, the college of St Paul in Old Goa started by the Society of Jesus, the first printing press that accidentally arrived in Goa and was set up at the Seminary of Rachol, the first modern medical college in Asia the form of Escola Medico Cirurgica de Goa that opened in 1842. Goa of the past can be termed as a centre of excellence, a pioneer in education and sciences, besides being extolled for its fertile land. It was during the period that the Goa Dourada lasted, that the land was capital of the Estado de India that extended from Africa to far east Asia encompassing all the Portuguese territories in the East.

That is history and from there we come to the present. Can Goa stake the claim of being such a centre of excellence today? Does Goa retain the green cover and fertility that made this land the envy of kings and conquerors? Answers to these would never be simple and could lead to long dissertations, attempting to assert in the positive or in the negative, for there occurred events in the last decades that further changed the course of Goa.

The next tectonic shift was of power and influence being transferred from Lisbon, Portugal to New Delhi and Goa. Neither did this come easily or quickly. Goa first struggled for its Liberation, and then after having achieved it had to fight to retain its identity that it did via the Opinion Poll of 1967. Two decades later, Goans again came to the streets to demand the recognition of Konkani as the Official language that would lead to Statehood for Goa. However the struggle did not end with the achievement of Statehood, rather it led to a journey of

triumphs and challenges, some which have transformed the land. Goa's journey from a Portuguese colony to a Union Territory and then to Statehood is replete with interesting historical facts and deep perspectives. The journey of growth continues through the highs and lows of time. It unleashed power from colonial economic development to full-fledged State development of infrastructure, roads, water, electricity, education, industry, etc.

During this period, there came another noticeable tectonic change and this was in the growth of population from six lakh persons at the time of Liberation to nearly 16 lakh at the current time. The increase in migrant population is mainly because Goa is making rapid strides across sectors and the migrant population is contributing immensely to the work force. Yet, it is simultaneously putting tremendous pressure on the scant infrastructural resources of the State like land, housing, education, water, electricity, transport.

Goa today is a vibrant state making steady progress, boasting of one of the highest per capita income, best economic and human resource indicators and a 100 per cent literate population. This high rate of literacy and public awareness, coupled with sizeable resources promises a bright future but all development comes with a cost. Goans today are agitated because that cost is coming in the form of excesses on the land's ecology, environment, forests, trees, paddy fields, green spaces, etc.

As I stepped out of public life and retired to my corner of Goa, with more time for personal deliberations, a green hillside behind my house seemed to mock me every morning as I read in the newspapers about protests in villages against mega construction projects. It was as if this hillside was asking me, what I, a Member of the Legislative Assembly of Goa for seven terms, a minister in various governments, a chief minister twice, had done for Goa? Had I, with the powers vested in me of being a minister and a chief minister, done anything to protect my Goa? I felt a heavy weight upon my shoulders and looked at the hillside again,

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reflecting on what I had achieved, not for myself, but for Goa. It resulted in silent conversations between me and the hillside, every morning, me reflecting on the initiatives of the past and telling me that I had done enough, but sometimes the gusts of wind bent the trees such that I felt them whispering to me that I didn't need to stop now that I had stepped out of politics. I could still do something more for a better Goa. That's when the idea of this book and the title, A Better Goa, took root in me. Even before its contents could be ideated, the title was already playing in my mind.

I was a minister under several chief ministers, I was elected to head the party and took oath as chief minister twice, albeit I led governments that lasted short periods during a very turbulent period of Goa's political history. As a minister, the portfolios that were allotted to me didn't perhaps allow me to work on my broad and definite vision for Goa, as they weren't the departments that were leading the changes in the State at that time. But as I look back, I do so with a clear mind that I attempted much, succeeded in some, faced hurdles in others.

There has been a paradigm shift of development in Goa and this has been possible because of the determined efforts of the people of Goa, where I played a very small role, sometime achieving success and at other times not. I created an Employment Policy for Goa and I succeeded in implementing it almost totally, just a few policy measures remained unimplemented. I released an Education Policy and here I can truly claim to have achieved success entirely. But then there was the IT Policy, the first of its kind, not only in Goa but in all of India, that I could not implement because my government was brought down. Similarly, there was the Housing Policy that remained on paper, and the Biotechnology Policy, again visionary that didn't go beyond the paper it was printed upon, as changes in government led to my sitting on the opposition benches, and sadly, though there exists continuity in governance, this policy was never implemented by successive governments.

While these would be efforts arising from portfolios that I have held, my fondness for agriculture, trees and forests led to my introducing several Private Members Bills to protect the green look of Goa and to revive agriculture, a sector that is very dear to my heart.

But, rather than dwell on the past, we should build upon from it for the future. In that respect, I believe we should ignite the thinking process, thinking about everything God and nature have bestowed upon Goa. Our forefathers protected what they inherited and handed it down to us. It is therefore our duty to not just protect what we have, but enhance it and leave it for posterity. That is not happening and it is further exacerbated by the phenomenon of migration taking place in Goa. Not only has Goa attracted a large number of migrants, but Goans themselves are migrating to foreign lands, and we are in the early stages of seeing an entire new culture setting in. The paradox here is that this immigration is disturbing Goans and it accelerating their migration to the West, resulting in them selling their land. If this is not stemmed, there could come a time when nothing of Goa we knew, we inherited and we lived in will remain for future generations. Sadly, these changes have been so rapid that we are seeing them in our lifetime, destroying the Goa that we loved and continue to love so very much.

The *raison d'être* for this book is perhaps an honest introspection for me as a former public representative, both at the State level and for a short tenure at the national level. This is a humble attempt to present to the readers the challenges confronting Goa, whilst enumerating and explaining the steps taken over time in the post liberation period, analysing where it might have gone right or wrong and finally presenting suggestions for 'A Better Goa'.





Tambdi Surla:
An oasis of spiritual peace
amidst verdant hills

An aerial photograph of a lush green forest. In the foreground, a stone temple with multiple tiers and a central spire sits on a paved platform, surrounded by a low green hedge. A paved path leads from the temple towards a small gate in the distance. The background is filled with dense green trees and rolling hills under a blue sky with some clouds.

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“There are two major challenges before Indian agriculture today: ecological and economical. The conservation of our basic agricultural assets such as land, water, and biodiversity is a major challenge. How to make agriculture sustainable is the challenge.”

– M S SWAMINATHAN

THE REGREENING OF GOA

Transitioning from fallow fields
to a green revolution

During Goa's long and chequered history, when it was populated by tribes and conquered by kings and empires were built around it, there arose one exceptionally significant contribution to Goa's agriculture which came during a period when science and engineering, as we know the two fields today, would have been very basic. Thousands of years ago, the denizens of this land created a marvel called the khazans that survived the conquests and the vagaries of time, such that we do not require to imagine these khazan lands today, for we still have evidence that demonstrates to us what our forefathers created 3000 years ago with rudimentary materials, building bunds and sluice gates that controlled the ingress of river water into the land. This scientific and engineering feat permitted the production of different varieties of paddy and allowed parcels of land to be utilised for harvesting salt and for fishing. Today, those khazan lands are the most fertile of fields in Goa and the process of controlling the water levels is still managed in the same manner as it was done over 2000 years ago.

As per available records, over 17,500 hectares of land were developed for rice cultivation with an intricate system of dykes, bunds and sluice gates, which allowed people to reclaim the estuaries, saline flood plains that were below the sea level and were affected by the high tides. Simultaneously, some 200 hectares of land were set aside for the manufacture of salt. Paddy cultivation occurs in around 39 percent of the total cultivated land in Goa, grown mainly in three different land forms—morod or uplands, kherlands or midlands and the khazans.

Agriculture does not depend on merely preparing the land and the khazan system would have been useless if our forefathers had not the foresight to create

communes of people who would work on this land, but they didn't stop at that, they went further to make the process of agriculture economically viable. That foresight which created the gaunkaries can only be envied today. Under the gaunkary system, the land belonged to the community, the gaunkary that managed it and leased it out to tenant farmers who tilled the land and gave a portion of the produce to the gaunkary. The gaunkaries were self-sufficient and semiautonomous associations that met all the administrative and material needs of the people and in their continued experiments with the land and agriculture introduced terraced farmlands and horticultural practices that created the Goa we inherited.

None of the rulers who came to occupy Goa disturbed the gaunkary system. When in 1510 the Europeans came, and over a period of two centuries added to their colony by conquering the neighbouring lands, they introduced a number of new ideas in governance, but even they left the gaunkaries untouched, except to codify the rules that gave the gaunkaries or the comunidades, as they came to be called by the Portuguese rulers, a legal identity. The gaunkaries were the backbone of Goa's agricultural economy and post-Liberation, had these institutions been strengthened by the governments, agriculture would not just have thrived in the State, but been a major economic activity.

Post-Liberation Blow to Comunidades

When Goa was liberated in December 1961, it was still a largely agrarian economy with close to 80 percent of its population engaged in either agriculture, horticulture or animal husbandry. The state was self-sufficient in paddy, coconut, cashew and areca nut production. However, in the years following Liberation, agriculture began to decline as Goa veered from the path it had taken in the past and embarked on the road to development.

With the establishment of popularly-elected governments and a growing

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focus on improving living standards, a series of changes—perhaps not always fully thought through—pushed agriculture to the margins. The first blow to agriculture came in the guise of so-called progress; the second and more decisive, came from interference in the functioning of the comunidades, which were gradually dismantled and today been rendered ineffective. Rapid urbanization and the promotion of tourism further undermined Goa's agricultural base. As tourism flourished and many Goans migrated abroad, earned foreign income and remitted it to Goa, agriculture came to be increasingly neglected. Traditional farming fell into quick and steep decline, and agricultural lands were steadily converted for non-agricultural use.

Comunidades, as already pointed out, were the land owners, but rarely worked the land themselves. In that respect, one can actually term the comunidades as managers of the land that was leased out to be cultivated every three years in exchange for a fee. The comunidades did not become rich through this as the earnings were ploughed back into the land preparing it for the next crop. After Liberation, a critical legislations that led to the erosion of the comunidades was the Land to the Tiller Act that, in an attempt to align Goa's land reforms with those of the neighbouring states, was enacted without a detailed study of the existing land ownership patterns in Goa. The land belonged to the comunidade, not to the tiller, and once the tiller was allotted the land, and held its ownership, it led to fragmentation of land. The comunidades very abruptly found themselves deprived of the only asset they owned, while the tiller became the owner of a small parcel of land that was not always economically viable for agricultural purposes. This occurred as the comunidades slowly withdrew from their duties of managing the land—in effect preparing it for the next crop—and the new land owner was left with a plot of land that was uneconomical to till.

It was in this manner that our engineering marvel, the khazan lands that were created 3000 years ago by our ancestors, with bunds and sluice gates that allowed

the production of different varieties of paddy or for harvesting of salt, come to languish in such lamentable condition as they are today. Earlier the comunidades managed the bunds, the sluice gates and undertook all the maintenance. Once the comunidades were replaced as landlords, nobody undertook these very important tasks, because individually nobody was willing to do this nor had the budget for such management of the land. Therefore, today the bunds have been fractured and the sluice gates are unworkable, leading to the khazans being in a woeful state and crying out for revival to a government that has neither the finances nor the will to revive them.

Soil Loss and its Recovery

Evidently, it was not only administrative and governance blunders that contributed to sweeping agriculture to the sidelines, Goa's climate and topography have also played a major role, making the land susceptible to soil loss and there is evidence, borne out through studies, that the State has suffered from a tremendous amount of soil health degradation.

To a large extent Goa's topography is undulated, where the slope of the land varies from 0 percent to 28 percent with an average slope of 14.41 percent. This undulating topography and the copious amounts of rainfall that Goa receives—an average of 100 to 120 inches in just four months—results in soil erosion, with losses ranging from moderate amounts, of less than 80 tonnes per hectare per year to extremely severe of greater than 80 tonnes per hectare per year, as against the national average of 15.50 tonnes per hectare per year. When juxtaposed against the permissible soil loss limit for India which stands at 11.2 tonnes per hectare per year, one can appreciate the enormity of the situation that calls for measures to stem the loss.

This is possible as studies conducted over a period of 15 years and longer by Indian Council of Agricultural Research – Central Coastal Agricultural Research

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Institute, Goa provide data on the amount of soil lost, the health of the soil, how much is the loss in rice production, coconut, areca nut, cashew, and how we can revive the health of the soil. These studies have indicated that the soil loss in Goa can be arrested, rather simply by growing cashew, mango and coconut trees, as soil loss is evident more in barren or uncultivated land. Studies have reported that soil erosion losses in cashew, mango and coconut cropping systems were estimated to be 24 tonnes per hectare per year, 12.6 tonnes per hectare per year and 10.5 tonnes per hectare per year respectively, without any additional conservation practices or control. It was a natural process that occurred solely because of the trees on the land. As is evident, the soil erosion losses in these cropping systems were less to or close to the national average.

This was given to me in a reply to a question I had asked in the Rajya Sabha, then Union Minister for Agriculture and Farmers Welfare, Narendra Singh Tomar. It had further stated that the runoff loss as percentage of rainfall in cashew was 23 per cent, mango was 32.1 per cent and coconut was 23.8 per cent. Further, the nutrient loss from cashew cropping systems was 35.8 kg nitrogen per hectare, 1.9 kg phosphorous per hectare and 52 kg potassium per hectare. In the case of mango it was 76.4 kg nitrogen per hectare, 13.8 kg phosphorous per hectare and 33.6 kg potassium per hectare. For coconut it was 62.1 kg nitrogen per hectare, 10.9 kg phosphorous per hectare and 19.3 kg potassium per hectare.

The evidence is all too visible in the above, but it doesn't end there as in the same reply the minister further said that Indian Council of Agricultural Research – National Bureau of Soil Survey and Land Use Planning had prepared a land resource inventory of Goa at 1:10,000 scale and assessed soil fertility and brought out soil fertility maps and Land Resources Information Systems Goa mobile App to indicate soil and soil fertility information. As per this study, parts of Satarri, Salcete, Sanguem, Quepem and Canacona talukas have a moderate soil erosion of 10-15 t ha⁻¹ year⁻¹ and moderately severe 15-20 t ha⁻¹yr⁻¹ potential soil loss

accounting for 8.8 and 8.9 per cent area respectively. Further Pernem, Bardez, Bicholim, Satarri, Tiswadi, Ponda, Quepem and Sanguem talukas have severe 20-40 t ha⁻¹ yr⁻¹ and very severe 40-80 t ha⁻¹ yr⁻¹ potential soil losses accounting for an area of 26.9 per cent and 22 per cent of the state. Pernem and Bicholim talukas have extremely severe >80 t ha⁻¹ yr⁻¹ potential losses accounting for 4.1 per cent area of the State.

If soil loss is a natural process, based on long-term studies from 2001 to 2013, Indian Council of Agricultural Research – Central Coastal Agricultural Research Institute, Goa has developed technologies to reduce soil and nutrient loss in cashew, mango and coconut. Studies on cashew were conducted on slope of 19 percent. In places where cashew was grown, the soil and water conservation measure standardised (continuous contour trenching plus vegetative barrier of vetiver grass) and this reduced the runoff by 44.5 percent soil loss by 47 percent, reduced from 24 to 12.3 t/ha/year and NPK loss by 60.2 percent, reduced from 89.7 to 35.7 kg/ha/year, with increased soil organic carbon stock by 140 percent. It was found that litterfall in cashew, which starts during November and December, covers the soil surface and acts as a physical barrier to the runoff and reduces soil erosion losses. Further, the leaf litter helps develop a conducive environment for micro-flora and micro-fauna, such as earthworms. Improved organic matter and microbial activities lead to an increased infiltration rate. This results in improved soil moisture conservation and groundwater recharge. Similarly, studies on mango plantations were conducted on 19 percent slope from 2002 to 2019. In mango, a soil and water conservation measure of continuous contour trenching plus vegetative barrier of vetiver grass (CCT+VB) reduced soil loss by 83 percent, reduced from 12.6 to 2.15 t/ha and runoff by 53 percent than control, reduced from 42.1 to 22.3 percent. This recommended measure on an average reduced NPK loss by 88.6 percent over control. Studies on coconut were conducted on 14 percent slope from 2008 to 2019. In coconut, circular trenching reduced soil loss and runoff by 76 and 34 percent, respectively which has reduced the NPK loss by 78.2 percent over control.

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What can be concluded here is that cultivation of crops like cashew, mango and coconut do reduce soil erosion, however, this can be further improved by the adoption of soil and water technologies developed by ICAR-CCARI to reduce soil erosion loss and improve soil health. However, it would be foolhardy if we after possessing the data and the prevention methods of soil loss we were to do nothing about, so implementation should follow the studies.

Further, loss in soil health does not necessarily lead to less production or to leaving the fields fallow. Indian Council of Agricultural Research – Central Coastal Agricultural Research Institute, Goa has developed salt-tolerant rice varieties such as Goa Dhan 1, Goa Dhan 2, Goa Dhan 3 and Goa Dhan 4 for salt-affected soils of Goa. It has also developed Goa Bio 1, Goa Bio 2, CCARI Bio 3, CCARI Bio 4 for improving the biological activity of different types of soils to promote plant growth and improve plant health. Besides this, there are practices of integrated nutrient management involving Goa Bio-1, a talc-based bio-formulation and crop establishment methods to improve paddy productivity on the salt-affected soils that has been standardized. Indian Council of Agricultural Research has also standardized different soil and water conservation measures, namely, continuous contour trenches with *Stylosanthes Scabra* and *Vetiveria Zizanioides* for cashew crop, continuous contour trenching with vegetative barriers (*Vetiveria Zizanioides*) in mango and circular trenching in coconut to reduce erosion losses and degradation.

My concern is whether these varieties that have been developed reach the farmer or potential farmers. I am aware of individuals who own land, mostly ancestral that they have inherited, and who would be interested in tilling it, but are not cultivating the fields precisely because of the soil loss and the resultant poor crop that does not make it financially viable for farming operations. I know this out of experience too and I do believe that many Goans could be convinced to experiment for a couple of years with the new varieties of paddy if there is government support and contingent on the results could then invest into

agriculture, utilising the government schemes that are available.

Safeguarding Agricultural Land

One aspect that Goa, or rather a section of Goans, has been battling is the sale of land—agricultural and other—that is also being converted for non-agricultural uses. This is not a new phenomenon in Goa, and safeguarding land use had led to the demand of special status for Goa, a promise by the Centre at various times but never a fait accompli. The State Legislative Assembly has even passed resolutions in the Assembly demanding that the Centre grant special status for Goa. In 2012, the then Chief Minister, Manohar Parrikar, had led an all-party delegation to the then Prime Minister Dr Manmohan Singh. While the debate on special status arises at various points of time with no resolution to it, Goa does not require the Centre for it to act on protecting its land.

Under the Seventh Schedule of the Constitution of India, land comes under the purview of the State government, with powers to enact laws relating to land vesting with the State Legislatures. The State cannot overlook the mandate of law as enshrined in Article 246 (3) of the Constitution and more expressly in terms of Entry 18 of List II, whereby agricultural land is a State subject upon which the State legislature has exclusive authority to legislate. Further, if we peruse and afford due importance to Report No-18 dated March 2012 authored by the Goa Law Commission, we find that it had mooted a legislation for protecting Goan agricultural land, and herein could lie the way forward. The Law Commission Report recognised and acknowledged the fact that ‘Almost every State in the country—Goa perhaps is the only exception—have agrarian laws which put severe curbs on holding and selling agricultural property by and to non-agriculturists’. Why then, does Goa not have similar agrarian laws? If Goa introduced legislation to come on par with its neighbours in land reforms, why is it hesitant when it comes to aligning with other States in protecting agricultural land?

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It is entirely possible for the State to bring about legislation to safeguard agricultural land without having to depend on the Union government. There was a time, and it was not so long ago, when the demand for special status to Goa was on the agenda of every party which resulted in assurances by the UPA and the NDA on this. The Bharatiya Janata Party had assured special status to Goa on the eve of the 2012 State Assembly elections and followed it up with another assurance on the eve of the 2014 Lok Sabha elections. Following the 2012 elections, on April 15, 2013 the State Legislative Assembly had unanimously adopted a resolution appealing for grant of special status to Goa.

Goa, however, as seen above, doesn't require to remain dependent on the Centre and could have brought in changes to safeguard the land when the demand was at its height, but it didn't grasp that opportunity, instead politics got in the way and the demand slowly slipped out of people's mind. I for one have been the loser in this game as several of my bills, piloted in the Goa Legislative Assembly to preserve and protect agricultural land have been rejected by the government.

Hence, I cannot but ask why, when it is clear the Goa desperately requires a holistic, economically, environmentally and socially sustainable agrarian policy, that for over 60 years since the Liberation of Goa has not been formulated.

I did my bit at various times and in 2018, as a Member of the Legislative Assembly I introduced a Bill, The Goa Agricultural Land Conversion Bill, 2018, which was one such measure that the State government could take to preserve, protect and conserve the rich heritage, customs, culture, traditions, folklore and landscape of Goa. In the statement of objects and reasons, the bill said, 'Legislative control over the use, sale, acquisition of title and conversion of land is paramount to safeguard and sustain Goan lands. Hence measures to protect our land within the jurisdictional realms in which our State government can

legislatively operate must be explicated. This legislation thus endeavours towards conserving traditional agricultural lands and respecting the sentiments of our Goans as well as preserving the agrarian structure for the future generations.'

The bill primarily attempted to prevent the sale of agricultural land to non-agriculturists. Section 4 (1) of the bill read, *'Notwithstanding anything contained in any other law, judgement, decree, order, contract in force on and from the commencement of The Goa Agricultural Land Conservation Act 2018, a non-agriculturist shall not be entitled to acquire any land whether as land owner, landlord, tenant or mortgagee with possession or otherwise or partly in one capacity and partly in another.'*

Section 4(2) of the bill said, *'Every acquisition of land otherwise than by way of inheritance or bequest in contravention of this section shall be null and void.'*

Further, section 5, detailed this and I reproduce some of those sections, so that there is clear picture of what was attempted at that time.

5(1) Notwithstanding anything contained in any other law judgment, decree, order, contract in force with effect on and from the date of commencement of this Act, except as otherwise provided in this Act:

- (a) no person who is a non-resident shall be entitled to hold land; and (b) it shall not be lawful for,*
- (i) an educational, religious or charitable institution or society or trust, capable of holding property; except where the income from the land may be appropriated solely for the institution or the society or the trust as the case*
- (ii) a company; except where the primary purpose of such company is Agriculture.*
- (iii) an association or other body of individuals not being a joint family, whether incorporated or not; except where the primary occupation such association or body is in agriculture.*
- (iv) a co-operative society other than a co-operative farm, to hold any land, Provided*

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any person holding land or entitled by way of inheritance on the date of commencement of this Act shall be exempt from this clause.

- (2) *Every such institution, society, trust, company, association, body or cooperative society*
- (a) *which holds land on the date of commencement of this Act and which is disentitled to hold lands under sub section(1), shall, within ninety days from the said date furnish to the Mamlatdar within those jurisdiction such land is situated a declaration containing the particulars of such land and such other particulars as may prescribed; and*
 - (b) *which acquires such land after the said date shall also furnish a similar declaration within the prescribed period.*

(3) *The mamlatdar shall, on receipt of the declaration under sub section (2) and after such enquiry as may be prescribed, send a statement containing the prescribed particulars relating to such land to the Collector who shall, by notification, declare that such land shall vest in the State Government free from all encumbrances and take possession thereof in the prescribed manner.*

(4) *In respect of the land vesting in the State Government under this section an amount equivalent to the market price as on the day of vesting such land in the State Government shall be paid.*

In the above I had brought in enough protection for agricultural land in Goa, but the Bill was not taken up by the legislature. However, nothing stops the government from taking it up now or in the future, but rather than get into recriminations of what could have been done and was not done, I prefer to list a few recommendations of what the State requires to build up its agricultural map.

Regaining the Agricultural Landscape

For long we in Goa have been merely paying lip service to agriculture and to the farmers. Past governments have even announced plans of doubling farmers'

income. It sounds politically right to talk of doubling the farmers' income, but it is necessary to first speak to the farmer and ask him whether he has an income. The primary goal should be to ensure that farmers have an income, that the investment they make of their time and resources pays them back. How do you double an income that does not exist? In 2011, Goa had celebrated the golden jubilee of its Liberation from colonial rule. At that time the government had set up the Goa Golden Jubilee Development Council which had prepared a roadmap for Goa with the year 2035 in focus. In that it had stated, 'agriculture is one of the major economic activities of the rural people of the state. However, its contribution to GSDP has declined sharply and is now at only 7 per cent.'

It had stressed on the need of 'revitalizing Goa's agriculture potential and developing it through appropriate infrastructure, reduced wastage, improved input availability, resource conservation and support for agro-based entrepreneurship'. In order to boost agriculture in the State, the council had proposed a 10-point programme, which included promoting organic agriculture and building a unique 'Goa organic brand'. It had not stopped at that, but called on to 'promote innovative value addition, aggressive branding and niche marketing to get better prices for the farmers, ensure quality of brand through strict regulation'. Of course we need to market the product and the use of Goa in the brand name would have an emotional connect with the people, but the first step towards that would be to have the product. That leads to the question of whether Goa has agricultural produce at the moment that it can market nationally. One suggestion of the council was that agriculture be bestowed with industry status. This would help, but how? Would the farmer in the field derive benefits from industry status to agriculture?

Here are a few suggestions that can make the difference to Goa's agriculture as we plan to take it forward.

■ Crop insurance

I put this first as this was also a suggestion of the GGJDC and I am in agreement with it. GGJDC had suggested that that insurance be provided to farmers along with speedy compensation against losses from natural calamities and wild animals. In past monsoons we have experienced flooding leading to crop loss. The government then offers compensation, but if there is a crop insurance system and scheme, this recompense for losses can be taken care of without bureaucratic red tape that involves government compensation.

■ Restoration and use of khazan lands

Khazans are age-old systems that regulated the ingress of saline water into fields and allowed agricultural activities. Typically they are reclaimed lands from the river or the sea that have been made usable for agriculture and fishing by a network of bunds that protect the agricultural fields from tidal flows. They are a topo-hydro-engineered agro-aquacultural ecosystem. They primarily consisted of bunds that were constructed using material that was locally available and acted as dams that prevented the ingress of saltwater, in low-lying brackish coastal floodplains and mangrove forests. These bunds had openings, that operated as sluice gates controlling the flow of the tidal waters, allowing the tide to come in and bring with it fish, crabs and shrimps. The sluice gates closed automatically when the water level would equalise on both sides. In these fields, paddy with a tolerance to a low level of salt was grown. One such variety is Korgut, that was developed primarily to be grown in khazans where the water can be slightly saline and brackish. Goa in the centuries past had an eco-system where the farmer and the fisherman coexisted. It leads to a sense of disbelief that this no longer exists and we need to think of how this can be reestablished.

The agrarian reforms post Liberation led to the khazan lands falling into disuse as the stoppage of cultivation and the non-maintenance of the bunds and sluice gates led to mangroves reclaiming the space. With the law prohibiting the cutting

of mangroves, as these come within the Coastal Regulation Zone, these khazans where mangroves have grown may be lost forever to agriculture.

Attempts to restore the bunds have been made, and the State Water Resources Department undertook this task of repairing the breached embankments. There was a flaw here. The bunds of the past were built using indigenous material but the department constructed the new bunds with concrete that did not serve the purpose.

As discussed earlier in this chapter, the Land to The Tiller Act led to non-maintenance the khazans as land got fragmented and there was no single entity that had any interest in maintaining them, besides the revenue that the comunidades earned through this was also lost.

I suggest the need to seriously look into the possibility of introducing legislation to protect the khazans, something in the form of a Khazan Land Bill that will prepare a roadmap for the preservation of the khazans. An Act becomes law and this can identify who will be responsible for the maintenance of the khazans, list out the responsibilities and provide for penal process in case these responsibilities are not attended to.

■ Encourage and promote community farms

It may now not be possible to revert the comunidades to the position they once occupied as land has already been subdivided and given to the tiller or sold, but you can have community farms that are financed by the government as this does work out more economical and it is more practical to fence a large plot of land rather than many individual small holdings. It is easier also to go for a degree of mechanisation when it is one large farm. Across the world today, Israel's kibbutz system being a prime example, it is the community that owns the land and so they are in a position to improvise, to bring in technology, infrastructure and

finances. This can be emulated to reintroduce community farming.

I started a pilot project that works broadly on the lines of what can be termed community farms. I gave the farmers some facilities—fencing free of cost, wells wherever irrigation does not reach, common pumps and fertilizers and even arranged outlets where they could sell the produce. So they work on the fields and once the farm produce is ready, Goa Horticulture Corporation picks it up and pays the farmer. It was possible to make it economically feasible and viable for these farmers by giving them these facilities. In Davorlim I formed a farm called Krishi Urba, where 450 farmers have come together. In the monsoon they grow paddy and once that is harvested, thousands of farmers come there and grow different vegetables, including chillies, radish, lady fingers and other vegetables. I had bought two plots of land to put up market yards for them, but this got stalled.

■ Mechanisation, semi mechanisation, infrastructure development schemes

Mechanisation of agriculture is an aspect that has been on the cards for decades. The Government of Goa has an existing scheme called ‘Promotion of mechanisation in Agriculture’ that meets the farmers’ needs in purchasing machines. But again, Goa’s small land holdings make it difficult for farmers to invest in machines. This is where you require private enterprise to make it possible, and here such enterprise that is more social than private has made inroads in mechanisation, whereby the farmer need not own and operate the machines but can hire them along with the services of a provider. What I am referring to is the work that Fr George Quadros of the Salesian congregation has initiated. He takes orders for transplanting paddy sheaves and not only does he come with the transplanter but even brings the planted seedlings along, completing in a day the transplantation process that would in manual terms take up to a week. So what mechanisation has permitted is not merely reducing the time, but also the labour costs and operational costs that leads to an increase in

the net returns to farmers. Besides, one can cover a much larger area under this. Mechanisation, however, has to be linked to modernisation, infrastructure and marketing. They work best in tandem. To further boost agriculture, there would be need to develop special transport systems to link the rural agri products to the urban market.

Today, Goa boasts of a number of its agriculture products holding geographical indication or the GI status, these include the Mancurad mango, Khola chilli, Harmal chilli, Myndoli banana and others. But has the marketing value of these products been correspondingly increased? We are losing a major opportunity here by not developing the marketing of these products.

■ Cold storages, marketing and sustainable rates for farm produce

Merely producing food grains and vegetables will not lead to an increase in agriculture. It has to be sold so that the farmer can earn from it. This requires not just a market, but also storage facilities and sustainable rates. An example is the State of Uttar Pradesh that has created cold storage facilities for its potato farmers. The produce that would otherwise rot and be rejected leading to losses can now be stored and supplied to the market as and when needed. This not only ensures a steady supply, but also leads to the farmer getting a proper rate for the crop. In the absence of storage facilities, the farmer is often forced to sell off the produce at reduced rates as it being a perishable item, he cannot hold onto it for long. The middleman therefore turns out the big earner here.

■ Input management, quality seeds/training

The studies by the Indian Council for Agricultural Research should be pertinent and focus on the issues that are affecting Goa. Take for instance mango, cashew and coconut that Goa produced in abundance once, but now depends on these being supplemented in markets by those procured from across the border. Indian Council for Agricultural Research should focus more on a study on the runoff,

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soil loss and nutrition loss that affects these trees and suggest methods to further reduce the runoff. Further, Indian Council for Agricultural Research should explore the same issues in rice cultivation and suggest how higher yielding seeds can be sowed and reaped.

■ Innovation, Aquaponics, Hydroponics

Goa needs to innovate, it has to take steps in promoting aquaponics and hydroponics. Briefly, aquaponics is a method of sustainable farming that has been successfully adopted in India. It combines aquaculture, which is the cultivation of fish, with hydroponics which is growing plants in nutrient-rich water without soil. It is a combination where fish and plants grow together. To put it quite simply, plants are raised in a grow bed and fish are placed in a fish tank. The water from the fish tank that is rich in nutrients as it now consists of fish waste is supplied to the grow bed, where the naturally-occurring bacteria break the ammonia down into nitrites and then into nitrates, which are absorbed by the plants allowing them to grow. Simultaneously there is another process happening, wherein the roots of the plants clean and filter the water which, now oxygenated and clean, is then flowed back into the fish tank. This cycle continues.

In Goa, which has a largely fish-eating community, this could prove beneficial. Fish varieties that have been raised in aquaponics systems include tilapia, carp, catfish, trout, largemouth bass, salmon, yellow perch, bluegill, jade perch, barramundi and even shrimp, which are all edible. Besides, aquarium varieties such as goldfish, koi, tetras and guppies have also been successfully grown in such a system. It has been found that a large variety of plants can be grown in aquaponics, depending on the required nutrient, space and light that each requires. Some of the plants grown here include lettuce, tomatoes, ginger, eggplant, cucumber, basil, kale, cabbage, Swiss chard, mint, watercress.

There will be initial challenges that include the investment and the technical

knowhow for aquaponics, but these can be met with government subsidy as well as workshops respectively. Besides, for those who are internet savvy, there are online courses on this or instructions too.

Hydroponics is a modern method that grows crops directly in nutrient-rich water, avoiding soil and instead bringing in a different material to support the roots. It is in an early stage in India, and Goa has the potential of opting for it, converting it into a game-changing technique for farming in the State. In a State like Goa, where land is a scarce commodity, hydroponics could be the answer as it brings down the land requirement by up to 70 percent and has the potential of urban and indoor farming. There is today limited knowledge of this farming method and so there is need to create awareness.

Nutrient control in hydroponic farming is known to give higher yields, especially in cucumbers and leafy greens, both which are grown in Goa. It also has the potential of giving year-round harvests rather than the seasonal that we now have in Goa. This will benefit farmers as well as consumers. For instance, the Goa cucumber that is so rare and expensive could be made affordable to the consumer at a lower cost, while simultaneously ensuring that the farmer does not lose on profits. Hydroponics, however, does come with a high initial investment as it demands greenhouses, plumbing, lighting, as also higher operational costs for the same reasons, but government subsidies can surely come to the rescue of farmers, especially in the initial investment and years. Once farmers begin to earn profits, the subsidies can be withdrawn in phases.

■ Agriculture entrepreneurship mentoring, agriculture incubators

Agriculture at the current time is not being viewed as a business or has not been bestowed industry status. While agricultural development, introduction of polyhouses, cattle sheds, poultry farms are discussed, have there ever been a discussion on how these can be converted into profitable businesses? If

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agriculture is viewed as an entrepreneurship project, then it could change the mindset of many. The role of developing entrepreneurship in agriculture could be played by what are known as agribusiness incubators. They could be the key to taking agriculture from where it stands today to higher levels, and this can be done by developing and introducing the farmers to new technologies, initiatives and creating value chains to allow Goa's small farmer to reach the market. This is being done in many countries and it has led to boosting the economy, the farmers' prosperity by accelerating the business aspect of agriculture.

■ Innovative cropping patterns

Sustainable farming practices and technology should be tailor-made for specific crops in different soils and be made available to the farmers by the Indian Council for Agricultural Research. The suggestions for different crops in different areas that are arrived by Indian Council for Agricultural Research cannot be merely published and retained in their offices. Unless this reaches the farmers, the research will be of little value.

Conclusion

Agriculture has been a key contributor to the economy and continues to so be to many countries around the world. When we look at alleviating poverty, can we think of uplifting those below the poverty line through the tertiary sector? No, it will have to be the primary sector and so agriculture is the most powerful means to fight poverty. There are studies to evidence this, and the world today has something like 500 million small farmers. Surely they exist and thrive because they are able to contribute to the economy and also earn from it. It would be a fallacy on the part of Goa if it ignored agriculture and concentrated on the secondary and tertiary sectors. There has to be a balance between all the sectors, and this can be achieved only if agriculture is first developed. For that we do require incubators and accelerators that will turn agriculture into an entrepreneurship, bringing technology to the farmer and taking his produce to the market. There

will be challenges, many of them, but we can find the way to meet these.

Before even attempting to do anything, the government would have to gear up to get into mission mode, unless this happens, the results won't show. It is only when there is a desire to do the needful and see results, that there can be success. Once the government is in such mission mode, the first task would be to constitute a taluka-level task force whose duty it would be to prepare the documentation mapping the nature of land resources utilisation for development. Based on this the government would then be in a position to prepare a holistic and sustainable development plan to restore or reclaim agricultural activities in the State. This plan has to be drawn up by experts in the field and not by bureaucrats seated in their offices. In this respect, Indian Council for Agricultural Research that has an office in Goa and is doing excellent work would not only have to be consulted, but brought in to collaborate in the study. ICAR, in partnership with the agriculture college staff and students, could undertake research projects that would give students academic credits and inputs arrived through these studies could be incorporated in the plan.

In the matter of students, another task would be to inculcate in school children the desire to get involved in agricultural activities. To achieve this, mere environmental studies as a subject would not serve, but would necessitate the inclusion in the curriculum of chapters on the protection of ecology and environment from an agricultural perspective that leads to climate change mitigation. Such a method would therefore address two issues—agricultural revival and climate change.

Indian Council for Agricultural Research has undertaken a substantial amount of work already in the State. But then what benefit is it to the farmers if this research work does not reach them? Not just Indian Council for Agricultural Research, but the agriculture college and other research institutions too should

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interact with the farmer in the field, giving the latter the benefit of the former's studies.

All that can occur only if agriculture is taken up on a mission mode by the government. It will never happen otherwise. No efforts will deliver results, if they are not taken to the grassroots. Goa's mix of urban and rural areas bestows upon it a very rurban setting. Agriculture may not be possible in the villages that ring the urban areas, but it can be promoted in the others. The village panchayats therefore must be given a larger role to play in promoting paddy cultivation. If the elected panchas are reluctant to take up agriculture promotion in the villages, the talathi of every panchayat must be given powers to organise the farmers in the village to sow in every possible field within their jurisdiction, so that none are left fallow for even a single season.

Agriculture can be revived only by going to the field and putting ones legs and hands into the red soil of Goa. Rather than merely talk about it, I have been doing this and find much personal satisfaction, even though there is no monetary benefits. While I do this as a hobby and because I love Goa and can't bear to see the land remaining fallow, the farmer does it to earn his living. He has to earn, and unless that is made to happen through government initiatives, we will not see a revival of agriculture.



“The one who plants trees knowing that he or she will never sit in their shade, has at least started to understand the meaning of life.”

– RABINDRANATH TAGORE

BEFORE GOA'S LAST TREE IS FELLED

As trees in the State face the axe for development, propounding a simple, yet effective way to save our leafy and friendly giants

Goa is known for its beauty. That's an unlikely statement to begin a chapter with in a book such as this, for it resonates more with a tourism brochure, repeated so often that it is almost a cliché that most Goans just shut their ears too. Yet, I deliberately use that very sentence, fully aware that many of my fellow Goans may frown and wonder why they need to be reminded of this. There is a reason and it revolves around the fact that Goa is mercilessly butchering what nature has bestowed upon it. Don't just take my word for it, drive around this land of ours and see for yourself. Trees have been cut, hills have gone bald, paddy fields have been filled, sand dunes have been levelled resulting in Goa's very fragile ecology coming under threat. The moment you cut a tree, there occurs soil erosion. The rocks get exposed and the area transforms from a canopy of trees to a degraded one of bushes and from bushes it descends into cacti and from that to a graveyard of rocks. Sadly, that is what Goa is coming to and that is what hurts me most—that the Goa I love, the Goa where I have lived and still do, is not the green, leafy, shady land that my forefathers bequeathed to me, that I as a child walked with my mother who taught me to love nature. If I inherited a Goa that was green, can I consciously and conscientiously leave for the generations to come a Goa that is not as green as it was? I feel that I have to fight this destruction of Goa and I have done so in whatever manner I have been able to.

A question that has troubled my mind for a long time, and when I mean long, I should say my entire life, from childhood onwards for trees have always fascinated me, is whether we are doing enough to preserve the tree canopy of the State. I may not have known of the importance of trees as a child other than the fact that they gave fruit, but that fascination for trees developed from my mother,

and it is because of her that all my life I have revered trees and till today I can't bear to see a tree being cut. It pains me, as much as it pains the tree and it was this pain that led me to take up the cause of preserving them.

My First Encounter with Tree Felling

It was in the early 1980s, at a time when I was a young MLA with a lot of drive and a vision for Goa that I believed I could attain through politics. I was driving to Canacona; I didn't really have anything specific to do in this southernmost taluka of Goa, but I used to love to drive through the wooded areas and the road to Canacona passed through a lush forest. Anyone who has been on this highway stretch will testify that as you drive there are trees in front of you and on either side of you. On that particular day, when I reached Karmal Ghat, I was shocked, disturbed and upset because instead of trees I saw only barren land on either side of the highway. The trees had been all felled, the forest, as I remembered it, was just not there. What was once a beautiful forested area, abundant with trees was now completely barren, the land that had been shaded by the trees for perhaps centuries was now brown, scorched by the sun. It was a horrible sight. I didn't drive further, devastated, I turned the car around and returned home.

Next morning, I drove to Panjim and met our then Chief Minister, Mr Pratapsingh Rane. I was a first-time MLA and Mr Rane was much senior to me, but we shared a very cordial relationship, so I didn't face any nervousness in meeting him. I came straight to the point and asked him, how had the government allowed such vast tracts of the forest to be cut at the Karmal Ghat? That day I received one of my first lessons in the politics of compromise.

By nature, Mr Rane also loves forests and remains till date an agriculturist. He explained to me the political exigencies involved in running a government, where MLAs had to be accommodated. He said to me, "You are young, you don't know, I have to manage the MLAs." Mr Rane explained that a majority of our Congress

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MLAs at that time were what we call forest contractors or timber merchants. Since the Forest Department was cutting the trees, they were buying the timber and earning from it. He told me that the MLAs would come to the Secretariat, walk into his office and ask him to sign on the proposals for clearing forest land. This was a second surprise for me, after the previous day's sight of bald forest land. I saw that the government, our government, was unable to act and was also not going to act, but something had to be done. I could not allow forest land to be cleared in such unreasonable manner, I had to fight it.

Much of the damage to our forests, and I would go out on a limb and say that 90 percent of the damage, has been done by the Forest Department. At that time, there were forest areas that were being cleared by the Forest Department and as replacements the same department were planting trees like eucalyptus and teak. Unknown at that time, these trees were destroying the biodiversity. I recall that when in school, we were taught that the eucalyptus trees are very useful, for the oil could be used for various products, including toothpaste and for medicines. It was only later that we realised that these trees were actually damaging the environment. Planting eucalyptus trees is akin to operating a water pump in a pond. Like a pump, the eucalyptus tree sucks all the water from the hills and all of it gets evaporated through the bark of the tree. After that nothing grows on that land, the hills become barren. Eucalyptus trees were not ideal for our weather and these destroyed the other flora and fauna.

Piloting Preservation of Trees Bill

I was caught in a dilemma of what to do. In my readings of books and reports, I had come across Dr. Swaminathan's Task Force Report on Eco-development Approach and here there were very specific statistics of the forest coverage in Goa, giving specific figures for the time of Liberation and to when the report was prepared, which was 20 years later. I was stunned and saddened at the extent by which the forest coverage had dropped in Goa. That report by Dr. Swaminathan's

task force propelled me to take up the issue and I told the Chief Minister that if the government found itself with its hands tied, then I would draft a bill for the preservation of trees and table it in the Assembly.

And I did just that. In drafting the Bill I was helped by Mrs Deshpande who was working in the Legislature Department at that time. I brought the Bill to the House on a Friday, it being Private Member's Day. The date was March 31, 1982. The Chief Minister, after going through the Bill called me aside and explained that while my Bill was excellent, he could not allow it to be passed because in a democratic setup with a Legislature, allowing a Private Members' Bill amounted to the defeat of the government.

I was not ready to backtrack and countered saying, that it was because he could not manage the MLAs that I had brought this bill to the House. He asked me to withdraw it but I was adamant and refused to do so. There was no way that I was going to withdraw the Bill, I was determined to get it passed. At that time, though the Congress was in power with a sizeable majority, the party was quite the divided house. I told Mr Rane that I would get Dr Wilfred de Souza and Mr Babu Naik to support me and the Bill.

At this there resulted an impasse but we soon came to an understanding. Mr Rane said that he would send my bill to the House Select Committee. What we agreed upon was that when my Bill was brought to the House, it would be opposed and then it would be sent to the Select Committee and the government would draft its own Bill for the Select Committee. I would be appointed as a member of the Select Committee and the Bill that the Select Committee approved would be brought to the House and passed as a government Bill. I could not oppose this as my objective of preserving the trees was being met.

Accordingly, The Goa Daman and Diu Preservation of Trees Act 1984 was

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passed by the House. This Act is basically the bill that I had brought to the House. If there is an Act that protects trees in Goa, it was because of the Private Member's Bill that I moved in the House in 1982. It was a meritorious Bill and it is pertinent to read through the 'Statement of Objects and Reasons' of the Bill as it was introduced in the Assembly, for this provides us today a very definable picture of the situation at that time. It stated:

"Goa, Daman and Diu is perhaps the only territory in the Country where the private forests are still in existence while in other states the private forests have been taken over by the Government, long back. Though as per the old statistics the forest area in this Union Territory is shown as 1053 sq. kms. provisionally, figures given by the Land Survey Department indicate that the Government forest cover only about 888 sq. kms. which is hardly about 24% of the geographical area. Large chunks of these forests too have been encroached upon or brought under cumeri cultivation. Thus, the effective forest area is still less. Besides, 250 sq kms. of forests are lying under the control of private parties and Comunidades in this Union territory, most of which are in badly degraded state for want of proper management and care.

"Considering the situation arising out of mining activity, topographical features, rainfall etc., the forests are found to be vital for this Union Territory to conserve soil, water, environment and last but not the least to meet the timber and firewood needs of the local people.

"Goa, Daman and Diu Forest Rules, 1964 as well as the Land Revenue Code, 1968 provide that felling of trees in private lands can be done only with the permission of the Forest Department and Collector but there is nothing in these Rules/Code to refuse such permission even when it is felt that such felling of trees will be against the larger interest of the territory. In view of the soaring prices of the timber and firewood coupled with the fear in the public mind that large tracts of the private forests may be taken over by the Government under the proposed Land Ceiling Act, there is tremendous rush for issue of

licences for felling of trees from the private properties.

“If wanton destruction of God given natural forests/trees with or without formal permission continues at the present rate speed, it will not be long before Goa will have no vegetation worth the name outside Government forests. The lands which are being cleared in the name of extending cultivation/horticulture too will be rendered useless as a result of soil erosion and intense laterisation which are quick to follow, if adequate measures to develop the land are not taken immediately after the vegetation is broken.

“Under these circumstances it is necessary that the felling of trees in private forests which are mainly confined to the natural forests existing in this Union territory from time immemorial, is halted and more trees grown in the larger interests of the local populace. ‘The Goa, Daman and Diu Preservation of Trees Bill, 1982’ seeks to achieve this purpose.”

The important points to note from the above are:

- Private forests were in existence in Goa, while in other states they had been taken over by the Government.
- Forest area had been shown as 1053 sq kms while current provisional figures indicated that Government forest cover was about 888 sq kms, about 24% of the geographical area.
- Forests under the control of private parties and Comunidades were in badly degraded state.
- No provision in the Goa, Daman and Diu Forest Rules, 1964, Land Revenue Code, 1968 to refuse such permission for felling.
- If wanton destruction of forests/trees continued at the present rate, it would not be long before Goa would have no vegetation outside Government forests.

From 1961 to 1982, in two decades, in the name of development and political exigency of course, we had reduced the forest cover of Goa substantially. If we were to allow that to continue, without bringing in legislation to control the felling of trees, we would perhaps have had no forest cover at the present time. When

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the Bill came up for discussion and passing on August 31, 1982, I supported it. Till today, I feel gratified that I was able to make this big difference to Goa, for though it was a Government Bill that was eventually passed, essentially all the sections that were in my Private Member's Bill were incorporated and brought to the House.

Outcome of the Act

Briefly, here are some vital sections of the Bill that became an Act. The most important section in the Bill was Section 8 which read: *"Notwithstanding anything contained in any other law for the time being in force or in any custom or usage or contract and except as provided in this Act or the rules made thereunder, no person shall fell or remove or dispose of any tree or forest produce in any land, whether in his ownership or occupancy or otherwise, except with the previous permission of the Tree Officer; provided that if the tree is not immediately felled, there would be grave danger to life or property or traffic, the owner of the land may take immediate action to fell such tree and report the fact to the Tree Officer within 24 hours of such felling."*

Another important point in the Bill was Section 10 that stated: *"Every person, who is granted permission under this Act to fell on dispose of any tree, shall be bound to plant such number and kind of trees in the area from which the tree is felled or disposed of by him under such permission, as may be directed by the Tree Officer; provided that the Tree Officer may, for reasons to be recorded in writing, permit lesser number of trees to be planted or trees to be planted in any different area or exempt any person from the obligation to plant or tend any tree."*

Similarly Section 12 (2) of the Bill stated, *"All owners shall effectively protect all the trees growing in the lands or areas under their control and where the Tree Officer is of the opinion that adequate measures have not been taken to protect the trees from any damage, he may direct the owner to take such measures as are considered necessary to protect trees from damage. In case of default, the tree officer may himself arrange such measures and*

recover the expenditure thereon from the owner in the prescribed manner.”

Did the Bill help? This is a question that can perhaps be answered by just a cursory glance at data on forest cover in Goa. The fact that the total forest area of Goa today stands at 1424.46 sq km, of which approximately 200 sq km is privately owned, is evidence that the Bill did have a positive effect on the State. Today, we have 33.08 percent of the geographical area of Goa as government forest, and 5.40 percent as private forest. In effect, 61.52 percent of Goa's geographical area is non-forest land. Compare this to the fact that in 1982, the forest area was 28 percent of the geographical area. There has been an increase and the Tree Preservation Act is one of the reasons why the tree canopy has increased.

One other factor that has led to the increase of forest area, is the growth of mangroves along the riverine areas that are considered forests and included in these statistics. Although mangroves are often dismissed as not real forests and there is a debate on whether they are beneficial or not, the United Nation's Environment Programmer states that mangroves provide critical ecosystem goods and services, protection against storms, erosion and flooding, are sources of food and timber, improved water quality and carbon sequestration. Besides, the same programme states that mangrove forests are natural habitat for over 1,533 different species, including nursery habitats for many commercially important fish, and are beneficial to the health of adjacent ecosystems such as coral reefs and seagrass meadows.

Similarly, on the webpage of Grow A Million Trees, it is stated that 'Goa's mangroves are vital for their ecosystem services. They act as natural buffers, reducing the impact of tidal waves and storm surges. Mangroves also store up to four times more carbon than tropical forests, playing a crucial role in climate change mitigation.'

Sacred Groves of Meghalaya, the Northeast and Goa

During the time I spent in the North-East States, as observer appointed by the All India Congress Committee, I had the opportunity of visiting all seven States and understanding their culture and traditions. I had also the privilege of visiting the sacred groves of Meghalaya and returned fascinated by them. While we too in Goa have sacred groves, in Meghalaya these have been bestowed a high level of protection and conservation. Essentially the sacred groves are, as explained by the Meghalaya Biodiversity Board, tracts of virgin forests that have cultural or spiritual significance for the people who live around them. They have been protected by communities for a variety of reasons, including religious practices, as burial grounds and water shed value. As a result of this the rich biodiversity of these forests are protected. I had the opportunity to visit these sacred groves, especially in the Khasi Hills at Mawphlang and Cherapunji but I couldn't go there alone, I was accompanied by the village headman.

The sacred groves of Meghalaya enjoy legal support under the United Khasi-Jaintia Hills Autonomous District (Management and Control of Forests) Act, 1958 and the Garo Hills Autonomous District (Management and Control of Forests) Act, 1961. Both Acts were passed in pursuance of paragraph 11 of the VI Schedule of the Constitution of India. A chapter on 'Sacred Groves of Meghalaya', by B Tiwari, SK Barik and RS Tripathi states that as per the Act, the sacred groves are to be managed by the Lyngdoh (religious head) or the person to whom the religious ceremonies for the village are entrusted. As per section 7 of the Act(s) no tree can be felled in these forests without the previous sanction of the Chief Forest Officer. Similarly section 9 prohibits the felling or removal a tree except for purposes connected with religious function or ceremonies recognised and sanctioned by the Lyngdoh.

Sacred groves in Meghalaya cover an estimated area of 10,251 ha, located in catchment areas of major rivers. Most are located at the origin of perennial

streams, others on steep hill slopes, both critical sites which are most vulnerable to degradation. Hence sacred groves protect the land and soil from erosion and help maintain the quality of water in the streams downhill. As expected, the sacred groves are repositories of rich biodiversity and home to a number of rare and endangered flora and fauna. The vegetation of the undisturbed sacred groves is generally very dense and well stratified. The presence of tall monoliths within these sacred groves is evidence that these have existed for long as these were erected in memory of the departed elders of the local tribes.

In Meghalaya sacred groves represent a long tradition of environmental conservation based on indigenous knowledge by the tribal communities. They are among the few least disturbed forest patches which are serving as a natural treasure house of biodiversity and a refuge for a large number of endemic, endangered and rare taxa. The general term for sacred groves in the Khasi Hills is 'Khlaw Kyntang' or 'Law Kyntang' or 'Law Lyngdoh' while in the Jaintia Hills it is called 'Khloo Blai'. The sacred groves in the Khasi Hills and Jaintia Hills District are fundamentally based on the traditional religious belief of the tribals i.e., Khasis and Pnars, which is called Seng Khasi and Niam Tre respectively. They believed that a forest deity called 'Ryngkew', 'Basa' or 'Labasa' in the local language, resides in these sacred groves which protects and provides for the wellbeing of the village community. In these forests cutting of trees, plucking of flowers, fruits, twigs is prohibited and it is believed that if any of these acts are done, the deity would get offended and this would result in unfavourable events. Various rites and rituals are performed periodically in these forests. There are 79 sacred forests covering approximately 9000 ha, with the average size of the area varying from 0.01 ha to 1200 ha.

At least 50 rare and endangered plant species of Meghalaya are confined to these groves and about 125 sacred groves have been surveyed and mapped by the Meghalaya Forests Department. One is not permitted to touch anything there. I

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was under the impression you can eat the fruits, but no, you can't. Some of these groves are also rich in rudraksha beads, but even these cannot be removed.

Yet, despite the strict laws and enforcement, sacred groves in Meghalaya are increasingly coming under threat as the tribal way of life changes. The area under sacred groves is also shrinking and quite a few have been turned into degraded forests. The erosion of traditional values and deterioration of sacred groves in recent times is, however, a matter for concern.

Just as Meghalaya, Goa too has sacred groves spread across the State. Most of these can be found in the eastern talukas of the State and there are about 90 such groves listed in Goa, which, for our small state, is a reasonably big number. Since they are important from the point of wildlife and environment, and they play a role in the protection of the ecology, they need to be identified, restored and protected, just as the sacred groves of Meghalaya are preserved.

The Japanese Way of Shinrin-yoku

Trees play another role that we often overlook. Not all countries fall in this category, but there are many that have got a high density of population and way low forest areas and then there are countries that have succeeded in increasing their forest area despite a rise in population in a small area.

Japan for instance, which was devastated by Word War II and the atom bomb attacks on Hiroshima and Nagasaki, today has nearly 69 percent of its area as pristine forest coverage. This is over two-thirds of the total area. And how do we in Goa compare? Can we take pride that we have 33 percent of the area under forest coverage? Before we even attempt to answer that question, it is pertinent to see how Japan manages to keep such a high percentage of its land as forest and we could even emulate that country.

The Japanese philosophy is that the tree is equal to a human being, they regard the tree on the same level as a human, whereas western civilization says God created trees and finally there is the human being who is superior to all other living beings. Not so with Japan, for whom the tree and the human are equal.

The concept that the Japanese follow is termed *shinrin-yoku*, a word coined as late as in 1982 and that very simply can be translated as 'forest bathing'. In Goa, our elders used to annually go for a sea bath in the summer months as a sort of therapy in preparation for the monsoon. In Japan, forest bathing is also a wellness therapy and involves little other than 'walking slowly through the woods, in no hurry, for a morning, an afternoon or a day'. While it started as a marketing gimmick to attract people to the forests, studies conducted showed that, 'our bodies still recognize nature as our home, which is important to consider as increasing numbers of people are living in cities and urban environments each year'.

In 2024, the Japanese government funded a \$270 million yen (\$2.5 million) research on nature therapy, which was supplemented by another 200 million yen, researchers were able to build a climate controlled test room and carry out various tests and experiments.

Tests carried out on males showed that blood pressure levels of the subject dropped, the adrenaline concentration levels fell as did the cortisol levels after a day of forest bathing. The conclusion of the study was that 'a forest therapy session lasting a few hours offered physiological relaxation effects to male subjects with high blood pressure'. A test on office workers showed similar results, of blood pressure dropping. A third test on mature women showed the concentration of salivary cortisol had decreased by 26 percent, the average pulse rate was also found to be significantly lower.

The book 'Walking in the Woods' by Prof Yoshifumi Miyazaki details the

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concept of shinrin-yoku and while it admits that it cannot treat disease, 'it can have a preventative medical effect that makes falling ill less likely, and can help reduce the strain on health services worldwide that stress-related illness caused each year'.

Shinrin-yoku can be very simply practiced. The book states that 'the purpose of forest therapy is to calm overstimulation from artificial and urban environments and promote relaxation. With this in mind, some of the more obvious activities include meditation, yoga, stretching and hammock time.'

All this did not happen overnight or without government support. The Japanese government has invested in developing Shinrin-yoku as a national health program, with funding for research and the development of designated forest therapy sites. There exists a Forestry Agency under the Ministry of Agriculture, Forestry and Fisheries that is responsible for promoting and developing forest therapy initiatives, including the Forest Therapy Base scheme. The Forestry Agency also conducts research on the health benefits of forest bathing and on the therapeutic effects of forests. The Japanese government has declared pockets or stretches, which are exclusively protected, as its natural habitat. These are natural habitats filled with biodiversity that are created by the government for the people who can enter these for forest bathing, health walks as preventive medical health therapy.

Recommendations

During my time in Parliament, as a Rajya Sabha member, I had sought to know how much forest land in Goa had been encroached. The reply I received was that wherever there have been encroachments, the government is pursuing them. What is actually happening on the ground is that the government is regularising the forest encroachments. Successive governments first destroyed the comunidade land, then destroyed the revenue land and are now encroaching on forest land. The High Court and the Supreme Court have come very strongly

against these encroachments. Today we hear that the government will be wire fencing certain forest areas to prevent wild animals from straying into villages and residential areas, and destroying the farms or attacking domestic animals, including pet dogs and cattle. We are not addressing the main cause, that the wild animals are straying because humans have encroached on their habitat. We can't have wire fencing of the forests and hence I wish to recommend that the government must transform from being reactive to being proactive in protecting the forests and towards this, I make the following suggestions.

The first is that the government should constitute an authority under the Forest Department that will be responsible for the protection forest land. It may appear that this is duplication of work as the Forest Department is already protecting the forests, but what we see happening today is that the Department is in a manner of speaking allowing people to encroach upon forest land and to cut forest trees, because if there is any tree cutting that occurs, the Forest Department officials go to the site and collect money in the form of fines. My suggestion is that this authority must be made responsible for every square metre of forest land and every tree in the forest. The role of this authority should be to protect the forests and the tress, not to regularise encroachments and the felling of trees by penalising the perpetrators with fines.

The second suggestion is that anybody cutting any tree in a forest or any tree anywhere in the State should be penalised, not just in the form of fines, which to many would be an easy way out, but far more stringently. Should somebody encroach on forest land, should somebody cut a tree, immediate action has to be taken against them as per the laws and the rules. For that we may have to new rules, even amend the Act, but unless such stringent measures are taken, the ongoing encroachments on forest land and felling of trees will not stop.

I now come to another recommendation. Goa is in a unique position to

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emulate the Japanese concept of shinrin-yoku or forest bathing. I suggest that we blend the sacred groves concept with that of the Japanese shinrin-yoku to give us here, in Goa, not just spiritual benefits but health benefits too.

My vision is to have 40 such small forests—green areas that will be biodiversity parks—one in each constituency of Goa. Before we find that we have nothing left of the forests, I am of the opinion that the government must create these biodiversity pockets all over Goa planting a variety of trees. These biodiversity parks that I am suggesting for forest bathing will not necessarily be the existing forests. The government can identify such areas for the people and maintain them expressly for forest bathing purposes, for the wellness of the people and society has to play a major role here. People too have to be disciplined, as these won't be parks for picnics or for playing games. They will be open to the public for walking, meditation or such activities without disturbing the peace.

In these biodiversity parks the officials must have the authority to issue fines to those breaking the rules. When a person goes for forest bathing, they should not be allowed to take any liquor or plastic or food with them. They should go there to enjoy the forest. There have to be strict rules here and if anybody is found littering, polluting, strewing plastic, causing noise pollution, air pollution, water pollution, land pollution, they should be heavily fined and a person who is fined more than once should not be permitted into these again. The sanctity of these areas has to be maintained.

It is my belief that once such restrictions are place in these biodiversity parks, people will fall in line. The idea is to 'bathe' in the forests, to improve our wellness with that little time spent in a forest just walking or meditating in and with nature.

Like a tree, I remain rooted in the hope that we will be able to save what nature

has bestowed upon us. But as I said, I want to go beyond, I want to create these spaces of trees so that our descendants will thank us for what we left them with. What I am suggesting is not just fighting to save trees, but planting a future with trees. I am convinced that Goa can do this. It is not too much to ask, all it needs is the will and application to make it happen.



“What we are doing to the forests of the world is but a mirror reflection of what we are doing to ourselves and to one another.”

– MAHATMA GANDHI

PRESERVING PARADISE, THE WESTERN GHATS

Time is running out for this ecological wonder and Goa should lead the way in protecting the world heritage site

Whenever I read about the Western Ghats or they come up in discussion, I am reminded of the Ramayan, an epic whose inspiring contents remain deeply ingrained in my mind, and the passage in recall in this context is the story wherein Lord Hanuman brings the mountain to retrieve the ‘Sanjeevani’ herb to save Laxman during the battle with Ravana. What is significant here, is that the Western Ghats are not just one of the richest biodiversity hotspots in the world but more importantly are home to Ayurveda and Naturopathy. In that context, we cannot overlook the fact that Goa is an integral part of the Western Ghats, the Sahayadri Range of Mountains that extends from Maharashtra to Kerala passing through Goa and Karnataka. Goa, though it encompasses but a small portion of the ghats within its boundaries, has six Wildlife Sanctuaries in these forests, preserving the flora and fauna, and where one can explore a wealth of herbs that could be utilised to improve human life and humanity. But, in recent times we read of encroachments on the forests, leading to the question of whether the forests are truly protected or under threat. To obtain a reasonable answer to that question we would have to review the Western Ghats and how they are placed today vis-à-vis the past.

A World Heritage Site

The Western Ghats are classified as one of the world’s eight global biodiversity hotspots. They have been inscribed by UNESCO as a World Heritage Site, with 39 specific sites that dot the ghats landscape, in the States of Maharashtra, Karnataka and Kerala, identified as such. Goa, very regrettably, doesn’t have a single site in its portion of the Western Ghats listed by UNESCO. This is not because we couldn’t have this achieved this, but entirely because of the State’s casual approach towards

conserving the mountain range or even taking pride in it.

The Western Ghats are older than the Himalayas, a veritable treasure trove of bio-diversity and home to a wealth of flora and fauna, some of which, in the light of recent discoveries, may not even have been identified as yet. They are known to have more than 5,000 plant and 140 mammal species, 16 of which are endemic, among these being the lion-tailed macaque and the Nilgiri tahr. Of 179 species of amphibians found in the Western Ghats, 138 are endemic to the region, while of the 508 bird species, 16 are endemic, including the Nilgiri flycatcher and the Malabar parakeet. The Western Ghats, considered an ecologically sensitive region, has approximately 52 species that are moving close to extinction. The main reasons for the loss in bio-diversity is habitat change, over-exploitation, pollution and climate change. None of these are natural factors but manmade and as such should also be reversible. The Western Ghats Ecology Expert Panel, appointed by the Union Ministry of Environment and Forests to assess the biodiversity and environmental issues of the Western Ghats, designated the entire region as an Ecologically Sensitive Area and assigned three levels of Ecological Sensitivity to its different regions.

I have always been very passionate about the environment, having raised these issues several times in the State Legislative Assembly and even brought in Bills for protecting the ecology, the trees and protection of the rivers. The bills have been my efforts in protecting these. I had also suggested a Protection of River Authority, Protection of Lakes, Protection of River Tributaries, and though the government had accepted these suggestions, it is sad that these authorities were never established. In the meantime, we continue to pollute our rivers and our lakes, thereby destroying the ecology, the environment and the biodiversity. But while this is a more recent phenomenon, it is pertinent to note that Goans have been part of efforts to understand the Western Ghats and its plant life, and sadly many of us in Goa may not even be aware of this.

Home to Ayurveda and Contribution of Goan Vaidyas to its study

Goa may have the smallest area of the Western Ghats within its geographical boundaries compared to the other three western states of Maharashtra, Karnataka and Kerala but its contribution to understanding the flora and fauna of the range of mountains has been enormous and goes back centuries.

I was pleasantly surprised to learn of the contribution of three Goan vaidyas in the compilation of the Hortus Indicus Malabaricus. Much of their work came to light at a seminar entitled 'Contribution of Konkanis to Hortus Indicus Malabaricus' which names these three as Ranga Bhat, Vinayaka Pandit and Appu Bhat. The Hortus Indicus Malabaricus is an extensive work, comprising 12 volumes with 794 copper engravings about 742 plants and is believed to be the earliest printed work on the flora of Asia and tropics (1678-1703). It describes plants from the region with multiple uses as well as with medicinal properties.

The Hortus Indicus Malabaricus, according to a paper presented at the seminar by scholar Madhusudhanan, includes modes of preparation and application, based on pre-Ayurvedic knowledge of the ancient, renowned, hereditary physicians of Malabar. It says, *'The ethno-medical information presented in Hortus Malabaricus was culled from palm leaf manuscripts by Itty Achuden, a famous physician of Malabar at that time. He dictated the material in Malayalam, which was then scrutinized by three Konkani gymnosophist priest-physicians (referred to in the text as 'brahmins'), Ranga Bhat, Vinayaka Pandit and Appu Bhat, followed by a process of thorough verification, discussion with other scholars and general agreement. The final draft was translated into Portuguese by the official interpreters of the Dutch East India Company. From Portuguese, the text was rendered into Dutch and thence to Latin. The introductions, forewords and dedications given separately in various volumes also contain valuable insights into the cultural, social, political, historical and linguistic conditions of 17th century Malabar. The descriptions of plants comprising their habit, foliage, flowers, fruits, colour, smell, taste and practical value appear in Hortus Malabaricus under their Malayalam names. The*

plates bearing illustrations have been inscribed in Roman, Malayalam and Arabic scripts. Konkani names are given in Devanagri script. Nearly all the plants are illustrated.'

Hortus Indicus Malabaricus followed Coloquis dos Simple (Garcia de Orta, 1565), that was published about a century earlier and which was a checklist on the medicinal plants of India, are considered the first published botanical works on the plants of the Western Ghats. What led to these works was the interest that the Europeans who came to this part of the Indian subcontinent had in the flora and fauna of the Western Ghats. Hortus Indicus Malabaricus is considered to be the most comprehensive printed work on the natural wealth of Asia and of the tropics, and was compiled and published between 1678 and 1693 by Hendrik Adriaan Van Rhee de tot Draakenstein (Van Rhee de hereafter), the then Dutch Governor of Cochin.

In another paper at the same seminar, Dr. V. Rajeev Shenoy, focused on the contribution of Konkani Brahmins to the work with respect to Ayurveda at the Homeland of Konkani ie, Goa. He wrote, *'Not only our GSB Ayurvedic Doctors in the past were experts in treatment, but they exported their knowhow to western countries also. Incidentally let us go back to the Goan Ayurvedic scholars who settled at Kochi, even before the 17th Century. This time tested truth was convinced to the western people without any shadow of doubt. Hence the western experts welcomed our doctors for their Ayurvedic applications.'*

He also stated that 'the Testimonium given in the 'Hortus' may be the first evidence of Konkani script. It is written in Devanagari as like Sanskrit.' The brilliance of the three Konkani Brahmins shows they were well versed in the Vedas, Vedantas and Sastrarthas.

Shenoy concludes that the Hortus Indicus Malabaricus, written in the 17th century, is the 'greatest achievements in the history of plant documentation. This shows

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that long ago Konkani Brahmins were aware of Ayurvedic concepts of medicinal plants and its uses. The morphology explained still serves as identification aid for many plants. The parts used and their method of usage explained in the book is very simple and can be used as home remedies.'

It is unforgiveable that we in Goa do not have a copy of the Hortus Indicus Malabaricus nor a memorial to these three knowledgeable Goans whose contribution to the Konkani language is unique and in academic and scientific circles still discussed. I strongly believe that we should construct one such memorial, as well as publish a copy of the work in Goa, not only to honour the three Goans but also so that our current and future generations learn of the prowess of their forefathers. One way of doing so would be to include a chapter on these three Goans in the school text books and for Goa University take up the work of translating the Hortus Indicus Malabaricus to Konkani and English.

My intention in going back into history is to underline the undisputable fact that our forefathers valued the forests. What happened next is that we took an entirely different turn and as the years went by, development came into focus, as a result the forests came under threat, as we shall see further on, by analysing the most authoritative reports on the Western Ghats.

Swaminathan Report Observations and Recommendations

For an understanding of how the Western Ghats, at least in Goa, have been cut, one has to peruse the report of the Task Force on Eco-development Plan for Goa, compiled in 1982 by the M S Swaminathan Committee. This report provides the best picture of what the State was like in the 1960s and 1970s.

We have the notion that forests in Goa are mainly in the hinterland—the eastern talukas—but in reality these are not restricted to these talukas nor are the ecological consequences of clearing them restricted to the eastern part of Goa, but they have far-reaching effects. This was emphasised in the first meeting of

the Task Force, held in New Delhi in July 1981, wherein it was stated that any forest plan for Goa should not be restricted to the three eastern talukas but, because of the interdependence of the lands in the valleys from the coast to the crest of Sahyadri in respect of ecological integrity, the Task Force should consider the problems of the entire district (Goa being a Union Territory was a single district) together and prepare a plan for Goa as a whole, primarily because these ranges occupy about one-third of the total territory of Goa. Right here, there is an important point to note, for according to the National Forest Policy, the forest area in a hilly region like Goa should be at least 60 percent of the total land area, thus, the forest area even in the Western Ghats region falls short of the limit.

The report states that provisional records of the Cadastral Survey (1977) of the Land Survey Department show an area of 83,903 ha. under forest, representing 24.3 percent of the total reporting area of 3,655.6 sq.km. It comments, 'Obviously, the area under forests has conspicuously decreased due to wide-scale private encroachments and also due to allotment of forest lands to cultivators for agricultural purposes.' It adds that the area under private forests were indiscriminately used, leading to soil erosion and flooding in low-lying areas, thereby posing a threat to ecological balance.

Dedicating an entire chapter to forests, the Plan informed that according to old records, the total forest area in Goa was about 1,309 sq. km. of which government forests were estimated to extend over an area of about 1053 sq. km., the remaining being under the control of Comunidades and private parties.

It further stated that until 1977, forests were managed under the clear felling system followed by artificial regeneration of species like teak, eucalyptus and cashew. After 1977, the clear felling system was discontinued in areas along the Western Ghats and in rest of the areas where it was continued, the upper one-third portion of the hill slopes is being worked under the selection system, which the report said was an improvement in the management technique from the

ecological point of view.

One activity that has wrecked the forest areas of Goa is mining. In 1982, the Swaminathan task force had said that about 70 percent of the area covered by mining fell within the forests that destroyed the forests, but arguing that mining was an important activity for the Goan economy and a significant foreign exchange earner for the country and hence necessitated to be carried out, it sought long-term plans of afforestation for the rehabilitation of lands after mining operations were abandoned. It even suggested that in areas where mining operations had been abandoned, afforestation work could begin.

Damage to forest land caused by the opening of pits and to some extent by dumping of waste is inevitable, particularly in Bicholim-Sirigao area, Pissurlem Sonshi area, Surla Pale area and Odaial-Tathodi area. The forest growth in these areas is generally shrubby with little commercial timber, the plan said.

It is interesting to read the recommendations and whether they have been followed. Regarding forests and mining it recommended that lessees should be bound to plant suitable forest vegetation on abandoned mining areas, that the width of roads in sanctuaries be kept to the minimum so as to avoid any adverse effect on ecology and for forest protection, that no black topping should be done and no heavy traffic should be allowed over these roads. Among other recommendations was that eucalyptus trees be planted on sites suitable for their growth and as a mixed crop with other species. On mining it recommended that all active mines review their mining plans with reference to protection of the environment, making a pointed reference to the disposal of rejects that should be avoided to the extent possible in forest and agricultural land, while planting suitable species of grass, legumes or trees in the dumps. It also suggested that it be mandatory for the mine owner to plant elsewhere within the lease area at least as many trees as were removed and sought reforestation on abandoned mines that

have been reverted to the government.

All these were made in the early 1980s, had these been followed, we perhaps would not have been facing the deforestation that we now see. I spent a month in Geneva, Switzerland, representing India at the International Labour Organisation. During that time I was able to observe the city and the surroundings and learn a few lessons. One aspect that has remained in my memory, and I recalled as I read the Swaminathan report, is that while they have developed the cities, they haven't brutalized the countryside by constructing very broad roads. They still have narrow roads, just the sort that had been recommended by the Swaminathan report.

I reiterate that the biggest destruction of Goa's forests has been due to mining and upset by this I had moved a resolution in the Legislative Assembly that the forests within the wildlife sanctuaries should not be touched. On the other hand I sought that they be preserved and allowed to rejuvenate. But beyond that, in recent years we have seen how mining has damaged the forests in Goa and illegal mining has caused losses to the exchequer. We therefore look at another report of 2010, almost 30 years after the Swaminathan plan.

Western Ghats Ecology Panel

The Western Ghats Ecology Expert Panel, constituted by the Ministry of Environment & Forests in February 2010 under the chairmanship of noted environmental expert Prof. Madhav Gadgil identified several eco-sensitive zones in the region and recommended that they be declared no-go areas. Among its recommendations, the panel had recommended an indefinite moratorium on new environmental clearances for mining in Ecologically Sensitive Zones 1 and 2 in Goa and a phasing out of mining to 2016 in Ecologically Sensitive Zone 1 as defined by the Western Ghats Panel. The Panel's recommendations included reduction of the environmental and social impacts of mining in Goa and in

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other regions, and setting up of a Western Ghats Ecology Authority (WGEA), as a statutory authority appointed by the Ministry of Environment and Forests, with the powers under Section 3 of the Environment (Protection) Act, 1986.

The recommendation to phase out mining activities arose from discussions between the Western Ghats Expert Ecology Panel (WGEEP), Civil Society, Industry and Goa Government held in September 2010 and site visits to iron ore mines, and the Mhadei and Bhagwan Mahavir Wildlife Sanctuary.

The mandate of the WGEEP was to identify areas which are ecologically sensitive in the Western Ghats; to identify criteria for their identification and determine how ecologically-sensitive areas should be managed.

At the consultation, Prof Gadgil, chairperson of the WGEEP said that ecologically-sensitive areas cannot be managed by a rigid set of regulations but by graduated regulations fine-tuned to the local context with positive development initiatives. He stressed on the need for making a development strategy for the Western Ghats which mainstreams environmental concerns into the development process. He also emphasized creating a road map for development of such a strategy.

Various organisations and individuals from Goa met the panel, among them Dr Claude Alvares, representing Goa Foundation and on behalf of the Goa Team brought to the attention of WGEEP the proposal of the Shayadri Ecological Sensitive Area (SESA) pending with the Centre. Interventions at the meeting showed that the area to be notified in that proposal encompassed four wildlife sanctuaries of Goa, but proposed that a bigger area be brought under SESA, based upon actual delimitation of the Western Ghats further based upon geomorphology and vegetation type. Participants had brought with them a draft notification and the modified SESA proposal was in agreement with the Zoning Atlas developed by the Goa Pollution Control Board and draft Regional Plan of Goa 2021. It was

pointed out that Goa has 58 percent forest cover and a number of mining leases operate in and around forest areas, that mining is incompatible with the ecology of the Western Ghats, having serious adverse effects on its ecology. Proposals from the Goa Team included that mining leases within Wildlife Sanctuaries be permanently cancelled, mining around the Selaulim Dam be stopped, and that no fresh forest clearances for mining activity be issued as no land is available in Goa for compensatory afforestation programmes. Since there already existed a Supreme Court order barring mining activity within 10 kilometres of a Wildlife Sanctuary, it was pointed out that while there should be a 10 km buffer zone around a Wildlife Sanctuary, the Goa Government had proposed a Zero km buffer in the case of Mhadei and Netravali Wildlife Sanctuaries, as a result most of the overburden dumps exist outside the mining area.

Suggestions included that the wildlife sanctuaries and adjacent areas in Goa be declared a tiger reserve that would include areas of Bhagwan Mahavir Wildlife Sanctuary/National Park, Cotiagao Wildlife Sanctuary, Mhadei Wildlife sanctuary and Netravali Wildlife Sanctuary. The importance of the Western Ghats as a catchment area was highlighted along with the adverse effects mining has on the Western Ghats, with specific reference to fresh water resources. The ill effects of mining were a theme that was discussed by a large number of the participants at the consultation.

Supreme Court on illegal mining

There is evidence that mining has played a major role in the devastation of the forests. Not only are the Swaminathan and Gadgil panel reports a clear indication of this, but even the Supreme Court of India has come down heavily on the mining industry, and what one such judgement says should put us to shame. In Special Leave Appeal (Civil) No. 32138 of 2015, where Goa Foundation was the petitioner and Sesa Sterlite Ltd the respondent, the Supreme Court began its judgement stating: *'Rapacious and rampant exploitation of our natural resources is*

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the hallmark of our iron ore mining sector – coupled with a total lack of concern for the environment and the health and well-being of the denizens on the vicinity of mines. The sole motive of mining lease holders seems to be to make profits (no matter how) and the attitude seems to be that if the rule of law is required to be put on the backburner, so be it. Unfortunately, the State is unable to firmly stop violations of the law and other illegalities, perhaps with a view to maximize revenue, but without appreciating the long term impact of this indifference. Another excuse generally put forth by the State is that of development, conveniently forgetting that development must be sustainable and equitable development and not otherwise.

‘Effective implementation and in some instances circumvention of the mining and environment related laws is a tragedy in itself. Laxity and sheer apathy to the rule of law gives mining lease holders a field day, being the primary beneficiaries with the State being left with some crumbs in the form of royalty. For the State to generate adequate revenue through the mining sector and yet have sustainable and equitable development, the implementation machinery needs tremendous amount of strengthening while the law enforcement machinery needs strict vigilance. Unless the two marry, we will continue to be mute witnesses to the plunder of our natural resources and left wondering how to retrieve an irretrievable situation.’

Further, the same judgement said, ‘On a combined reading of the material before it, the Court took a broad view that large-scale mining of iron ore led to several adverse impacts including those related to the environment, ecology and health of the people of Goa and that these illegalities and irregularities were committed by almost all (if not all) mining lease holders as reported by the EAC. The Court also accepted the view of the Expert Committee that the ecology of Goa was being degraded through indiscriminate mining and place a cap on the annual excavation of iron ore. It was noted that mining operations were suspended by the State of Goa on 10th September 2012 and environmental clearances granted to the mines were kept in abeyance by the MoEF on 14th September, 2012. Considering all this, as well as the law laid down in Goa Foundation to the effect that there is no automatic renewal of a mining lease but that a second renewal must be granted

in accordance with the provisions of Section 8(3) of the MMDR Act, the court used the expression “grant fresh environmental clearances for mining projects” in the passage referred to above.’

Another very pertinent paragraph in the Supreme Court order stated: ‘We were informed by the learned Additional Solicitor General that show cause notices have now been issued to some mining lease holders demanding huge amounts – some running into hundreds of crores of rupees towards value of ore extracted in excess of the environmental clearance, We were handed over some sample show cause notices (about 12) issued in September and October 2017 and figures are quite staggering – the demand raised being about Rs 1500 crores! Similarly, from the summary of Mining Audit Report submitted by the auditors (and handed over to us by the learned Additional Solicitor General for the period July 2016 to December, 2016) the amount demanded (including interest) by the State of Goa from the mining lease holders through show cause notices issues is about Rs 1500 crores! And without making any serious attempt to recover such huge amounts, the State of Goa has granted second renewal of mining leases and the MoEF played ball by lifting the abeyance order in respect of the environment clearances. The inferences that can be drawn are quite obvious.’

The Supreme Court then ordered that all necessary steps be taken to ensure that the ‘Special Investigation Team and the team of Chartered Accountants constituted pursuant to the Goa Grant of Mining Leases Policy 2015 give their report at the earliest and the State of Goa should implement the reports at the earliest, unless there are very good reasons for rejecting them.’

It also ordered to expedite the ‘recovery of the amounts said to be due from the mining lease holders pursuant to the show cause notices issued to them and pursuant to other reports.’

Hurdles To Reforestation

In 2021 a media report revealed that the state had no degraded land on which to undertake mandatory reforestation, as per the provisions of the Forest (Conservation) Act, 1980, that whenever a piece of forest land is diverted for non-forestry purpose, be it mining or infrastructure, an equal area of revenue land/non-forest land or double the area of degraded forest land has to be used for compensatory reforestation. Since it had no such land to compensate for the loss of trees for a project, it had obtained permission from the Centre to plant trees in Karnataka and then had sought permission to reforest 300 hectares of land in Madhya Pradesh.

Effectively, the forests that Goa is losing to mining or to other development projects are being lost forever with no possibility of replanting trees in compensation. This raises a very pertinent question: Should Goa consider projects that involve deforestation if the State does not have the land for reforestation and has to use its funds to grow trees elsewhere?

One doesn't need to pause even a minute to answer this question. Goa cannot allow its forests to be cleared for projects. Simple logic concludes that creating a forest in another region will not save the area which has been denuded. It exposes that land that has had its trees felled to the wrath of nature. This is what happened in the Periyar region of Kerala that experienced devastating floods in 2018 and this is what Goa also went through in July 2021 with its own floods. Goa's policy for reforestation in the State must take into account the manner in which reforestation can take place when a particular area of a forest is to be cleared for a development project. Seeking to plant trees in another State indicates that there has been no thought process in the policy and this is a mere clause in the policy.

Conclusion

To summarise, the Western Ghats are a UNESCO World Heritage Site and one

of the world's eight biodiversity 'hotspots'. The mountain range is home to some endemic species and a vital source of freshwater for millions of people and the animal kingdom. They are also an ancient mountain range and the medicinal value of the plant life has been documented over centuries. They also play a crucial role in regulating the south west monsoon and maintaining the ecological balance across peninsular India. There can be no disagreement that they should be preserved and, we must admit that efforts are on to conserve the ghats, yet they are facing unprecedented threats from deforestation, unregulated development, mining and, in current times, climate change. The rapid degradation of the ecosystems of the Western Ghats not only endangers the unique flora and fauna but also jeopardizes the livelihoods and cultural heritage of local communities. I urge the governments of the four States within whose boundaries the Western Ghats pass, to urgently introduce sustained conservation efforts to protect this irreplaceable natural treasure for future generations and to ensure the ecological stability in the region.

In doing so, we cannot overlook the animals. Through our interference in the Western Ghats we have encroached into the habitat of the animals, with the result that the animals—tigers, leopards, elephants, wild boar, bison, deer—have been displaced and there are instances of them straying into human settlements, creating a nuisance to the farmers, with the government even listing out nuisance animals. What we fail to understand is that it is we humans who have been a nuisance to the animals, and the animals are merely reacting to our encroachment, for they are distressed by human development. Instead of reducing our footprint in the forest, we humans are still planning to venture deeper into the forests. Our focus today should be on keeping the forests pristine for the flora and fauna. It is theirs, we should not encroach, instead we should allow them to return to their habitat, not run away from it. One good development is that Goa is now planting fruit trees in the forest, instead of eucalyptus. This will produce food for many animals.

I am of the firm opinion that Goa can demonstrate to the rest of India that

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it values animal rights and respects the forests. Let this small state, that has the smallest portion of the Western Ghats, lead the way in conservation of this biodiversity hotspot. We are an environment conscious state, highly literate, aware of the consequences that ecological imbalance can bring about. I urge the government, and I am ready to partner in finding solutions to the issues that are threatening the Western Ghats. I am aware that people's livelihoods may be tied with the Western Ghats, mining being one instance, but I am certain that we can devise solutions that are acceptable to all. The Western Ghats, along with the forests, are my priority, I would like them to be our collective priority.

We must protect every bit of the Western Ghats as recommended by the reports and the Supreme Court judgement discussed in the preceding pages. We have to also survey and identify the encroachments and any illegalities in the Western Ghats. This may necessitate the formation of an authority, similar to the authority suggested for the preservation of trees and prepare a roadmap to safeguard the Western Ghats for future generations. In this mining will have to take second place and the environment be made the prime concern. It may not be acceptable to certain business interests, but the long term returns will definitely outweigh the short term profits that the extraction of ore brings to the business community. I fervently appeal to the government to take up the protection of the Western Ghats as their top priority, for the future of Goa rests on the survival of these forests. Time is running out, the moment to act is now.



“We are the first generation to feel the effect of climate change and the last generation who can do something about it.”

– BARACK OBAMA

BLOWING HOT AND COLD ON CLIMATE CHANGE

Poor response from the government on climate change and mitigation efforts increases State’s vulnerability

Goa's climate warriors have desperately attempted to draw the attention of the decision makers to the imminent disaster if the climate change process is not reversed. Climate change is not the State's priority. It is only when there are sudden and unexpected weather changes that the reality of climate change sinks in, that too only momentarily as it is soon eclipsed from the mind when the weather pattern returns to normal. But, climate change is being experienced in Goa – the uneven monsoons where one year there is a drop in rainfall and the very next season there is a record surplus, late beginnings to the monsoon, hotter than usual summers – they are all indications of weather patterns that are not normal. But few in positions of power are concerned about this.

Current Situation

During a week in the summer month of May 2025, when Goa experienced torrential rainfall that was unseasonal, reports in the local media stated that rainfall in Goa had increased by over 60 per cent from 1901 to 2018 and that instances of 'exceptionally very high rainfall' have surged by more than 100 per cent during the same period. This was based on research by Dr Rajiv Kumar Chaturvedi, Professor at BITS Pilani, Goa, and a leading expert in rainfall patterns and climate change. Other points in his research were that Goa's temperature has risen by 1°C in 100 years, higher than the national average, cyclonic activity in the Arabian Sea has increased by over 52%, sea level at Mormugao is rising at 1.45 mm per year, up by 0.48 feet in 100 years.

This was not the first such warning that Goa received about climate change. Eleven years earlier, speaking at the first Matanhy Saldanha memorial lecture

in 2014, Nobel laureate and UN Climate Change Panel's former chairperson, Rajendra Pachauri, had warned that Goa is vulnerable to climate change, especially to any rise in the ocean levels and had predicted that there could be a sea level rise that could have very serious consequences for the State. Another warning came in August 2021, when the 6th report of the Climate Change Intergovernmental Panel of the United Nations sent a chilling reminder that cities and towns on the west and east coasts of India are in danger of disappearing before the end of the current century. As part of the report, the National Aeronautics and Space Administration (NASA) of the United States predicted that various cities and towns of India were in danger of being submerged by up to 2.7 feet of water by the year 2100, one of the towns mentioned was Mormugao. In another study, climate scientist at the Indian Institute of Tropical Meteorology, Dr Roxy Mathew Koll, writing on Cyclone Tauktae that hit the West Coast of India and Goa felt it in May 2021, began his article with the warning, 'The Arabian Sea used to be cyclone shy! But that is changing now, and changing fast!'

In August 2018 the southern State of Kerala had gone under a devastating flood. At that time, ecologist Madhav Gadgil had said, *"Certainly all sorts of problems are beginning to surface on the environmental front in the Western Ghats. Goa, of course, does not have the Western Ghats which are so high as in Kerala, but I am sure Goa will also experience all sorts of problems."* That was yet another forewarning, and at that time it had been the subject of discussion in media and environmental circles, but there had been neither an agreement nor a refutation to the statement by Gadgil from the political class. The early warning from Gadgil have been dismissed by a stoic silence from the decision makers, but nature had its way and asserted that it cannot be tampered with. The waters furiously rushed into villages and homes, and Goa could do nothing but wait for the tempest to subside.

The warnings of changing climate patterns have been coming for long, we are experiencing it, but are we learning any lessons from it and is Goa preparing

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for the changes that could be upon us in the future? In the UN Sustainable Development Goals report released in 2021 by National think tank NITI Aayog, Goa that had aced in several goals, featured below the national average for climate change mitigation measures. Unfortunately, there is where we stand.

Coastal Erosion

Goa has already been experiencing the erosion of its coast and a technical report based on satellite mapping carried out by the National Centre for Coastal Research (NCCR) under the Union Ministry of Earth Sciences discovered that 19 percent of the State's coastline was eroded by the sea between 1990 and 2018. Another revelation was that 52 percent of Goa's shoreline is stable, which makes the other 48 percent unstable and therefore susceptible to sea water incursion. This is not a new phenomenon and in 2012, a report by the Water Resources Department (WRD) and tabled in the Goa Legislative Assembly had stated that 25.02 kms of Goa's coastline was severely affected by sea erosion. Five years later, in 2017, the same department had admitted that 10 kms of the coastline that had faced erosion were critically damaged. The report has stated that Betalbatim (1,320 m), Arrosim (1,190 m), Agonda (1,000 m) and Keri-Tiracol (1,000 m) were some of the beach stretches most affected. Against this background, Goa just cannot ignore the Coastal Zone Regulations, or even consider diluting them to suit commercial interests.

A major reason for the erosion is the destruction of sand dunes and a report of the National Centre for Sustainable Coastal Management (NCSCM), Chennai, attributed sand dune destruction to construction of tourism-related infrastructure and reclamation of dunes for approach roads to beaches, landscaping or beautification of frontal dunes. Ironically, and this is pertinent, as Goa has fallen into the trap of attempting protection of coastal areas by construction methods, the report pointed out that these measures of seawalls contributed towards altering the dunes or destroying them. Unless the dunes are restored

Goa's attempts at mitigating the coastal sand erosion will not succeed.

There was also damage to the beaches and sand dunes due to the cyclones that swept past the coast, but as was discussed earlier, these cyclones were also a result of the changes in the coastal areas, that have led to an increased amount of such formations in the Arabian Sea.

State Action Plan

Climate change cannot be ignored. The State Action Plan For Climate Change 2023-2033 does not present a very heartening picture of the future in Goa. One does not have to read too far into the report as the executive summary itself portrays a star picture stating, 'Goa's mean annual temperature has increased by over 1°C since the beginning of the 20th century till date (1901-2018), much of it during 1990-2018. The mean annual rainfall in Goa has increased by 68 percent from 1901-2018. With increasing rainfall, the inter-annual rainfall variability in the state has also increased especially since 1970s. While mean annual rainfall in the state has increased, moderate to light rainfall days (IMD category I) in Goa have declined over 1901-2018 period, whereas very heavy and exceptionally heavy rainfall events (IMD category III) in the state have increased by a dramatic more than 100 percent.'

That's just a summary of the temperature and rainfall pattern, and there's more in the form of rising sea levels. It states, 'Goa is already experiencing sea level rise. Long-term station data from Mormugao suggests that sea level at this station in Goa is rising at a rate of 1.45 mm/year with a 95 percent confidence interval of +/- 0.46 mm/year from the period 1969 to 2013, the period for which data is available. This suggests that the sea level in Goa has increased by 0.48 ft (or about half a feet) in 100 years.'

The above is the current situation and it is worrying. The projections are a cause

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for alarm. The report further state, 'Mean annual temperatures (model ensemble) in Goa may increase by around 2°C in by the 2030s compared to the 1901-1950 period and further to around about 4°C by 2080s under high emission scenarios. Goa will start experiencing heat waves (>40C) beyond the 2040s, as maximum temperature increases by about 5°C towards the century end under high emission scenarios. Under the high emission scenarios, minimum temperatures are expected to rise even more by up to 7°C by the century's end. The mean annual rainfall in Goa is projected to decline slightly under high emission scenarios, which under low emission scenarios is projected to increase slightly.'

On rising sea levels the report states, 'The flood vulnerability analysis from the state reveals that 14.73% of the land is under 15m elevation, much of it in the coastal zones, and is severely vulnerable to flooding from extreme rainfall events and sea-level rise. In terms of vulnerability from floods and sea-level rise the Talukas of Salcete, Tiswadi, and Bardez are most vulnerable.'

It further states, that 'UNDP predicts Goa stands to lose a large percentage of its land area, including many of its famous beaches and tourist infrastructure, which are very significant to the states' socio-economic status. It is estimated that a 1 m rise in sea level will affect 7 percent of Goa's population and cause damage to the tune of Rs. 8,100 crore. Because of this, it becomes essential to understand the vulnerability of different parts of Goa's 100 km vast coastline.'

Goa's coastal talukas are going to be the most vulnerable to climate change, especially the rise in sea level. *'The multi-hazard vulnerability assessment of the coastline of Goa carried out by NIO in 2014 provides a reasonable assessment of coastal flooding and inundation for Talukas along the coast. This is accomplished by using seven physical and geologic risk variables characterizing the vulnerability of the coast, including historical shoreline change, rate of relative sea-level change, coastal regional elevation, coastal slope, mean tidal range, significant wave height, and geomorphology using conventional and*

remotely sensed data, in addition to two socio-economic parameters: population and tourist density data. The results of this composite vulnerability index-based study suggest that 6 the 30 km of the coastline of the talukas of Salcete, Bardez, and Tiswadi has a coastal regional elevation of fewer than 35 m and is at the highest risk due to sea level rise and flooding. Bardez and Salcete talukas have both experienced erosion rates of more than 0.6 m/year while the erosion rate for Tiswadi was found to be above 0.3 m/year. These are also the most populated Talukas and most prominent tourist spots, further increasing the risk of erosion in these talukas.'

It is pertinent to note that the population is concentrated in these talukas and so, the effect would be higher. 'In the context of Goa,' states the Action Plan, 'communities living in low-lying areas, informal settlements like slum populations, people with disabilities, and those whose livelihood depends mainly on khazan lands and low-lying ecosystems including riparian ecosystems are in particular the immediate and most vulnerable groups. Also, four coastal talukas of Bardez, Tiswadi, Mormugao, and Salcete, house about 80% of the population and are hubs of economic activity.'

'Some of the coastal land in Goa has been reclaimed from the inundation of the tidal waters by constructing embankments. These lands are known as khazan lands and cover an area of about 18,500 ha. The khazan lands of Goa are a unique agro system and are historically and economically important. These lands in Goa are made of saline alluvial soils. They are used to cultivate paddy and form an important part of Goa's agricultural profile. Khazan lands are vulnerable as any sea-level rise or intrusion of salinity upstream can harm the quality of groundwater and soil quality.'

The Action Plan further states, 'Sea level rise and associated problems of bund breaching and need for restoration of khazan lands. It was expressed that sea level rise has been experienced in some areas, leading to soil erosion, impacted access to sea beaches, and disappearance of sea shells and fishes. Flooding of Khazan lands was specifically expressed as a concern, while the water level in creeks was also reported to have increased.'

The Action Plan is very clear that 'heavier precipitation events and floods accompanied by sea level rise are detrimental to the khazan land, which is crucial for rice cultivation in the state.' What then is being done to mitigate the effects of climate change.

Solutions

Mitigation strategies have been suggested in various sectors and it is now two years since the report has been released, yet we find that there has been almost none of the suggestions have been implemented by the government. What is the purpose of commissioning a study, undertaking it, preparing a report and then ignoring it? Rise in temperatures, variable rainfall and rising sea level are factors that will have devastating effects on lives and livelihoods in Goa. How can we be so unresponsive to what is happening around us, even as we experience the effects of climate change in the form of rising temperature and rainfall patterns?

Aside from immediate implementation of the measures suggested in the Climate Change Action Plan measures, the government would be advised to assess the situation, the changes that have occurred in recent times that are leading to the formation of cyclones in the Arabian Sea and also the monsoon flooding.

A close analysis of flooding in the urban areas is that the rain water is unable to find a natural drainage and so remains collected over the ground. The reason for this is 'development' or rather the concretisation of the spaces in the State. Fields and even ecologically fragile parcels of land have been converted into real estate areas for construction, cutting off the existing natural drainage system. Unplanned development has led to filling up paddy fields and levelling them to create land for construction has resulted in altering the natural drainage system and flow of water. It does not take specialised technical knowhow to understand that the flow of water into the rivers and the sea has to be allowed naturally, or if the natural system is blocked, then suitable alternative measures have to be taken to create drainages.

Planning and licensing authorities need to ask the question where will the water flow, every time a file seeking a construction licence comes. The State has to appreciate the fact that low-lying areas cannot be converted into real estate plots. Goa's roadmap for future development has to focus on sustainable forms of development, taking into consideration the need to stay above the water in times of floods. It is not right to always lay the blame on nature's fury, the authorities also need to own up to the creation of man-made blockages to the flow of water.

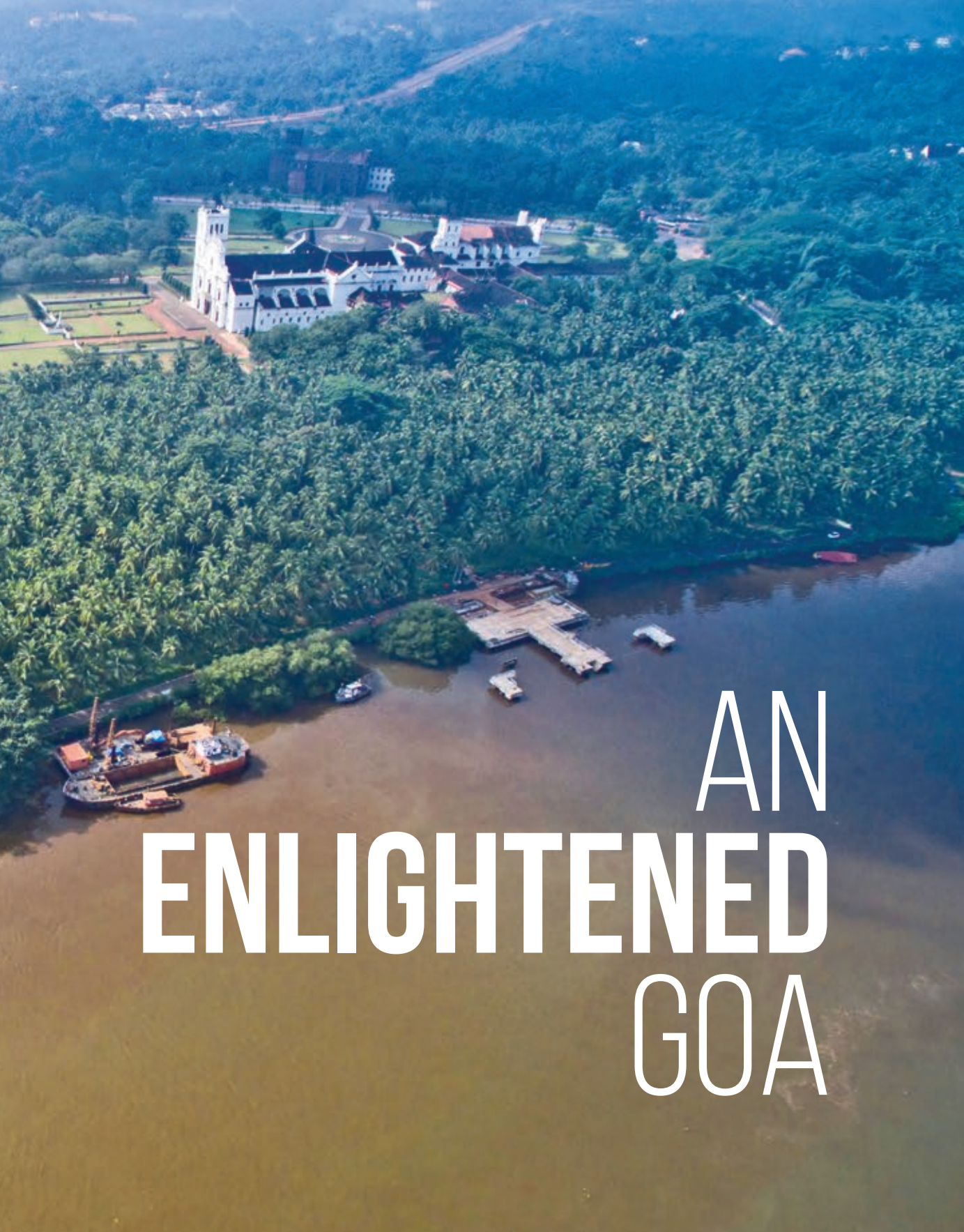
Goa needs to bring back to the table the Golden Jubilee Development Council report that had suggested implementing conservation laws to reduce developmental pressures and activating Biodiversity Management Committees at all levels, with powers of environmental monitoring, regulating local biodiversity use, and levying appropriate collection fees. It is the Biodiversity Management Committees at the village panchayat level that could play a major role in protecting Goa's environment. When the Coastal Zone Management Plan process blew up, it was these committees that worked in the short period provided and drafted the village plans for incorporation in the State plan.

Climate change may be a universal phenomenon, but it has to be handled at the local level to make it a global effort to arrest the changes we are experiencing. Goa should not lag behind.





Old Goa:
Quiet flows the Mhadei
past world heritage



AN ENLIGHTENED GOA

*“Knowledge is power. Information is liberating.
Education is the premise of progress, in every
society, in every family.”*

– KOFI ANNAN

SCALING UP GOA'S EDUCATION POTENTIAL

Bringing Goan youth on par
with their counterparts in
India and across the world

In July of 2024, the government of Goa announced that its aim was to attain 100 percent literacy by the end of the year, a target date set of just six months later. In December 2024, this deadline was extended and it was on Statehood Day, May 30th 2025, that Goa achieved the target of having its entire population literate. It is difficult to fathom why the government was not able to achieve this target of 100 percent literacy before this. Could it be that we have not focussed on education and literacy as much as we should have? The question is relevant as, having held the portfolio of education in the past, I am in a position to discuss this from the perspective of governance. Complete literacy of the population is always a good goal to have and to achieve. It is another feather in the State's cap that is already feathered abundantly with achievements but the State of Goa, that has had a high literacy rate for long years, should aim for even more accomplishments and records in the field of education, higher education in particular, in addition to literacy for all.

Literacy, as it is understood today, is the ability to read and write. But, what is required at the current period of time is also the ability of individuals to understand concepts, discuss them knowledgeably and form an opinion. Goa, therefore, should display more ambition in the field of education and work towards attaining certain goals. Primary education in Goa is quite enviable, especially when compared to some other States of the Union, but Goa requires to turn the focus on higher education, which though also quite impressive still falls short, leading to a substantial brain drain as the best of our young minds seek to complete their higher education in other States and even countries. While we can take pride that they are achieving much there, the drawback of this is that

few of them return to Goa, and the primary reason for that is because the State cannot provide employment opportunities for their high qualifications.

We are living today in the knowledge century and we have to raise the education bar for ourselves and for our youth. Nobody else can do it for us, only we can and we should, there can be no failure. This brings to mind the Goa Golden Jubilee Development Report that suggested that 'Goa 2035 should be built on its aspiration to become a leader in 'innovation in education' and 'education in innovation'.' With just a decade to that target date of 2035, Goa is far from achieving this or even coming anywhere close to it. At staggered intervals we learn from the media that there are attempts to promote Goa as an educational hub and the State even enacted a Private Universities Act that permits the setting up of universities in specialised areas. From media reports, we also learn that four private universities have been given permission to start in Goa, and that two such are already in place. In the meantime, we have only the Goa University who in July 2025 was awarded the A+ NAAC ranking but whose quality definitely requires shoring up. I shall touch upon all these in this chapter, while also outlining what has been done in the past.

Roadblocks in Education

If you wish to empower the people, you have to do so by giving them a good education. It is every parent's desire that their children receive the best of education and that they succeed in life, doing better than what they themselves have done. This has to be same with the political class, who have to consider the youth of the State or country as their own children and so desire that they do well. In a manner of speaking, we in Goa might have gone about doing so as education has been the focus of all governments, but the desired results have not been achieved. Since liberation, in our overenthusiasm to promote education and eradicate illiteracy we have been responsible for creating an army of educated unemployed—youth whose names remain for years on the live register of the

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employment exchange as they await a government posting. Intelligent young people who have completed their graduation and post-graduation are actually being made unemployable by the education system for no fault of theirs. The only means to fight unemployment and the existing mismatch between the educated unemployed youth, is to bring about massive changes that will restructure and revamp the existing educational system.

When I was allotted the education portfolio in June of 2005, I was confronted with three realities—the first that the quality of education was low, the second that there was no Goan boy or girl excelling in national competitive exams like the IAS and its related branches, and third that there were also no Goans who were getting admission into the IIT or IIMs and other professional colleges at the national level. I knew that I had very little time to tackle these three areas, as the term of the Assembly was already halfway through and would end in a couple of years, but I wanted to implement my vision and mission to improve the quality of education in Goa and qualitative level of education at all levels. So, instead of sitting and waiting for things to happen, I grasped the matter in hand and moved forward on a war footing. Within six months of taking charge of the portfolio, I had succeeded in implementing, for the first time in Goa, several measures, some of which were also firsts in the country.

It has always been my endeavour to not just educate the youth of our State but to also ensure that once they have qualified and obtained their diplomas or degrees, they are gainfully employed. The keyword here is gainfully, as many did get jobs, but not of their choice or to suit their qualifications. Besides, finding employment for all Goans, at that time and even now, is linked to a rather unique hurdle. In the 1990s and 2000s, but perhaps to a lesser extent today, most Goans wanted only government jobs and were not amenable to work in industry as those jobs were low paid or didn't give them the status they desired. Only a few youth were willing to work in assembly line units but it was there, in the manufacturing

units at the industrial estates, where the employment opportunities existed. Realising that our children and youth had higher aspirations, I thought that by bringing education to a different level you could bring the youth to not only to look at Goa, but look at the national level and even at the international level. I saw them competing with the best in the country, and with that in mind I strode forward.

Future thinking

Today, you can sit in a village and contribute to the world for we are living in a global village and the barriers that existed just a couple of decades ago have been shattered. You have the option of going out in the world and working, and also sitting in your home and contributing to the world from your own bedroom. What I was looking at, was our youth going out into the world, learning with the best and working with the best.

I had a vision and it was my aim to make Goans highly educated. Today we have the National Education Policy 2020 that is being implemented. The Policy envisions reform strategies in education that will encompass all sections, and aims to make Indian universities future-ready. These are long-term goals but there are short-term measures and targets that focus on mainly four themes—quality education, industry alignment, research and innovation and inclusivity. These are themes that I had conceptualised in the 1990s and 2000s and brought in measures in the education system to revolutionise it.

The education policy that was released during my tenure as Education Minister aimed at making Goa a centre of learning and an educational destination so that Goans could become part of a knowledge-driven society. I concentrated much on education during that period and Goa's performance caught the eye of the rest of India, with the result that the prestigious magazine India Today selected Goa for the award of best performing State in education, acknowledging that Goa

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was the Number 1 State in this field. It recognised the efforts that we had put in education, transforming the field in Goa.

Knowledge pyramid

It has always been my vision and my dream to provide better quality of life, impart quality education and promote employment and self-employment opportunities to my fellow citizens, and during my time in public life, as an MLA, Minister or MP, I strove to achieve it, in whatever way I could and in every department that I was handed to work with. So too, with the education portfolio.

Education cannot be treated in isolation. I view the education system as a pyramid, where primary education is at the bottom, secondary above it and higher education at the top. In this pyramid, the base becomes the primary and higher education the pinnacle. I believe that to improve the quality of education first one must work at bringing a qualitative change at the primary level, then focus at secondary education, and finally at the university education. A university is at the top of the educational pyramid and the flag bearer of the knowledge pyramid. A university cannot be a structure that comes off as ivory tower, or an institute where students get their degrees and are cut off from the rest of the world. A university has to produce individuals who are ready for the world. To achieve this, reforms in education cannot be initiated in isolation but have to be simultaneously introduced across all levels, so that there can be improvement that will hasten the process of the reforms. I believe that if the knowledge pyramid has to be strong, then the primary education has to be robust. It is logical that only if the foundation of a pyramid is strong can the man with the flag above stand firmly and securely. That was the principle I worked upon.

As Minister for Education in the Goa Government for a brief two years, I envisioned a 'Knowledge Driven Society' and sought to achieve it through an education policy. The knowledge and information revolution had changed the

matrix of not only capital, but development itself. Students had to be nurtured to be stakeholders in wealth creation. A preeminent goal of the policy was to see that children develop knowledge and skills in the knowledge economy and be the drivers of change for tomorrow. The Education Policy aimed at making Goa a centre of learning and an educational destination, so that Goans become part of the knowledge driven society.

Towards this goal of a 'Knowledge Society', the V A Pai Panandikar sub-committee on Knowledge Economy was set up and in 2006 recommended that Goa should cultivate a highly-skilled workforce and add high value knowledge industries. Besides, the committee also recommended the continuous innovation, identification and utilisation of cutting-edge technology as focal areas. Development of knowledge cities or knowledge industrial parks with the help of private and international investment, R&D Centres, good governance, infrastructure such as roads, power, education, health and related industries were also recommended by the committee to support the knowledge economy and the development of Goa as an Educational Nerve Centre.

To operationalise this yeomen task, even as Goa's comparative indicators were better than most Indian states, basic education had to be qualitatively improved at all levels—primary, secondary and the higher secondary. In that respect, 100 per cent enrolment and retention at the elementary level and qualitative improvement of education at all levels was made the focal area. Toward this end, the State Council for Education Research and Training (SCERT) was constituted. With that in mind, I brought the best syllabus available in the country, the NCERT syllabus. Goa was the only State to have implemented the NCERT syllabus in toto, not only to standardise textbooks and vastly improve learning content but to enable students to compete at the national level and produce good results. It was a Herculean task to have the NCERT syllabus accepted by the teachers, but they finally did. This initiative was acknowledged by many educationists as well.

Introducing NCERT Syllabus and setting up SCERT

This is how Goa came to be the first State in India to implement the NCERT syllabus. I was participating at a conference in New Delhi on the National Curriculum Framework 2005 where they were in the process of starting a new document. The meetings were attended by all education ministers. Based on these conferences, the new NCERT syllabus was drafted and we in Goa were the first to accept the innovative curriculum. The NCERT officials too admitted that Goa was the only State to implement the syllabus in full.

As I said, it was a Herculean task getting that syllabus introduced in Goa, the reason being that the teachers rose up in arms against me and the move. Change is always difficult to accept and so there were a lot of objections from the teaching faculty as they didn't want a new syllabus. The philosophy of the NCERT syllabus was that any curriculum should be a joy to the child, not a burden. The first thing that happened was when the text books arrived. They were all glossy and in colour and with illustrations, data, maps. They were very unlike the old books that used to be drab and unappealing. On the other hand, they were also expensive. I had to devise a way out and so I decided to give the text books free to the students. So, not only was I able to introduce the NCERT syllabus in Goa, but also provide text books free.

The introduction of the NCERT syllabus brought about an all-round intellectual, physical and emotional development of the child, which should be the aim of education, as mere bookish knowledge does not give results. We had now come on par with the national level in education, I wanted to go to the international. I wanted our children not just to look at the national level but also at the international level. Now, not satisfied with the NCERT I set up, for the first time in the history of Goa the SCERT or the State Council for Education, Research and Training, that was on lines of the NCERT, giving Goa an edge in education.

Schemes Under Sarva Siksha Abhiyan

Now here's how this was possible.

Being fully convinced that there was an imminent need to improve the quality of education I had approached the Union Minister of Human Resource Development, Mr Arjun Singh, who though very senior to me was close to me as we were in the same party and also members of the All India Congress Committee (AICC). I told him that I needed funds to improve the quality of education in the State. He listened to me and asked me to come the following morning. I had no idea of the reason for the second meeting. When I went there the next morning, there were a number of officers already waiting and Mr Singh asked me to give a presentation. I did and after I had finished one of the secretaries revealed that for the previous three years, under the programme titled Sarva Shiksha Abhiyan, they had been providing funds for exactly the purposes I had outlined and that Goa was the only State that had not availed of the funds. According to the scheme, the Centre was providing 75 percent of the funds and State was to put up the other 25 percent. We were already late, they told me. It was for the first time that I was hearing of this.

I was told that there were just three more years for funds under that programme, so I was asked to hurry up as otherwise Goa would miss it. I sought an extra grace period of two years, but Mr Singh told me not to worry about that. First, he said to me, start the process and then assured me that the Centre would provide the funds for whatever schemes that we wanted to implement. I also learnt that the previous Government had allotted Rs 158 crore under another plan, but this was not utilised as the schemes had not been prepared. I returned to Goa and within two months travelled back to New Delhi with a project consisting of 39 components. All the schemes we planned were accepted by the HRD Ministry. In Goa we then formed the Sarva Shiksha Abhiyan Society and went about implementing these schemes.

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The Sarva Shiksha Abhiyan came as a big boon for us in Goa. With time, there were some 60-odd schemes under this programme that were all taken to every village of the State and I visited every nook and corner of Goa to inspect the facilities and the infrastructure. I am listing here just a few of the schemes, those that I believe made the biggest difference to education in Goa, though there were other interventions under the Education policy.

■ Tool Room Training Centre

I happened to visit Bangalore, where there was a tool room training centre which was being run in collaboration with a Scandinavian country and for the 30 seats available, some lakhs of students used to apply. So I decided to have a similar one in Goa. I gave them land in the industrial estate at Kundaim, constructed the building, and arranged the finance, as each CNC machine at that time cost Rs 1 crore. We got grants from United Nations Development Programme (UNDP) and from the Government of India for this. The teaching staff too was specialised, and they were paid by UNDP as they came from outside Goa. The students obtained the same certification as that in Bangalore, but after I left, the Tool Room Facilitation Centre fell through.

■ Library Movement

When I was Education Minister, libraries came under the Education portfolio. I noticed that the government was collecting cess on excise for this, so I asked the officers where was the money going? The reply was that the money was there but was being utilised by the government for other purposes because they needed money. It was a big amount that was available. I set aside a plot at Patto for the State Central Library and then travelled across the country studying the libraries. I was quite impressed with the library at Parliament Annexe and I gave my feedback to the Goa State Infrastructure Development Corporation. I laid the foundation stone for the libraries at Panjim and Margao. The Margao library, Francisco Luis Gomes Library, was completed during my time.

■ Student Cyberage Scheme

One of the pre-existing schemes that I continued with was the Student Cyberage Scheme of giving computers to students. But I didn't stop at just giving computers, but took several steps forward. Computer laboratories were set up for Computer Assisted Learning and Computer Education programmes to facilitate computer literacy for children reading in the middle school. For the computer laboratories, we signed an agreement with Microsoft and they gave us software worth about Rs 40,000 for free. We didn't just give computers to schools, but also the software without which the computers would be useless. This move empowered students to compete globally. Education, through computers, was therefore taken to the remotest corners of Goa so that the underprivileged were not left out but ensured that they joined the mainstream and competed with those their age in the urban areas. I firmly believed that there should be no difference because of the location of one's place of residence.

■ Free textbooks, cycles

It was also decided to distribute free textbooks to all students reading from Class 1 to Class VIII. Girl students who faced problems in commuting to school were given cycles, so that they would spend less time in travelling and give them more time to devote to their studies. The parents were involved and gladly supported this, as their children were getting cycles, raincoats and text books at zero cost.

■ Teacher training

To up-scale the Teaching-Learning Process I organised teacher training programmes across the State but didn't stop at that as I made available grants to teachers to purchase teaching aids, books, laptops etc to make the process of teaching and learning more interactive and interesting.

■ Support for the Girl Child

Special emphasis was given on education of the Girl Child, by opening Fixed

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Deposit Accounts with banks to enable the transfer of financial assistance for further studies for girls. Special children were given financial support, uniforms, books, travelling allowance and escort allowance and allowance for equipment, once in three years. Mobile Schools, providing multi-level teaching experience to migrant and out-of-school children, were also commissioned.

■ Infrastructure Upgrade

It is not enough to plan and implement the curriculum and the teaching methods. The physical infrastructure, sanitation and security of school students too matter and so during my stint as Education Minister, large-scale repairs of schools, construction of toilets, classrooms and building of compound walls were undertaken and water and electrical connections given to schools. Mine was a short tenure as Education Minister, but I dedicated time and effort towards improving the physical infrastructure of the schools. There was, therefore, not just improvement in the syllabus, but also in the infrastructure and students were benefiting from all sides.

■ Improvement in Midday Meal

Other supportive measures such as strengthening and improvement of the Centre's Midday Meal Scheme was initiated to keep children, especially of the economically deprived strata, in school.

■ Cluster Resource Centres

A qualitative improvement in education was furthered by establishing Block Resource Centres and Cluster Resource Centres across the State. To upscale the teaching-learning process teacher training programmes were introduced across the State.

■ Manpower Fair

One of the major initiatives was the manpower fair that was organised at Kala

Academy. Here I brought all school representatives from across the State, for five days. I was personally present and I told them that they were participating at this fair where they were getting trained. I reminded them that it was not enough for them to be trained, but that they should go back to their schools and train their teaching colleagues. I also had similar programmes in my constituency in Navelim, where again, I involved schools.

■ Educational Fairs

Simultaneously, there were educational fairs organised, which focussed on career guidance and which involved prestigious educational institutes.

English as a compulsory subject

In 1990, the then government had introduced a new policy at the primary level of education, where it linked grants to schools to the medium of instruction, whereby only schools that had Konkani or Marathi as the medium of instruction would get government grants for salaries to teachers. Overnight schools shifted to the mother tongue as the medium, as the only other option was increasing fees by a massive margin. A few schools did continue with English as the medium of instruction, and were able to do so as the students came from families that were well to do and whose parents could afford to pay the fees. This situation prevailed through the 1990s and beyond. But, this system led to the students facing tremendous difficulties when they changed over to English at the middle school level and onwards. When I was handed charge of the Education portfolio, I immediately discerned this deficiency and despite opposition from sections of society, I introduced English as a compulsory subject from Class I to X with consolidated course books to take care of various competencies and minimum levels.

When I introduced English in Primary schools from Class I onwards, I faced opposition, but I knew I was doing the right thing. Today my stand has been

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vindicated. Even the Knowledge Commission appointed by Government of India, with Sam Pitroda as Chairperson, in its report recommended the introduction of English to eliminate differences between the haves and have-nots. My vision and my dream has always been to provide a better quality of life, impart quality education and promote employment and self-employment opportunities to my fellow citizens and I have worked in that direction.

In fact, even in Goa, though there were detractors as mentioned above, there were educationists who did support the move. Prof M.S. Kamat, who was Vice President of Murgaoon Education Society at that time, was one of those who backed the move and explained its benefits saying, “English from Class I benefits mostly the underprivileged since the privileged ones go to English medium schools, because they can afford it. English education is a ladder to higher education and jobs. It reduces the gap between haves and have-nots.”

He was not the only one to support the move. The Principal of Nirmala Institute of Education, the only college at that time providing a Bachelor of Education degree had said, “The introduction of English as a subject at the primary level, keeping in mind the need to help our children to function more effectively in a globalised world, where English is the key to success; appointing a Knowledge Commission to provide a vision and plan for education in Goa; and the implementation of Sarva Shiksha Abhiyan by Education Minister Mr. Luizinho Faleiro are all laudable schemes.”

Joining them was the former Speaker of the Goa Assembly and a Headmaster, Mr Tomazinho Cardozo, who said, “Introduction of NCERT syllabus will bring about the intellectual, physical and emotional development of the child, which is the aim of education. To begin preparing the students to be competent in English right from Std I, without decreasing the importance of mother tongue Konkani, in the primary schools is a very significant decision taken by Mr. Luizinho Faleiro.

This decision will go a long way in securing the future of our children.”

What is important is that today those students are able to stand alongside their counterparts on the same footing and my stand has been vindicated, since the necessity of English cannot be underestimated for a child's smooth transition to the secondary level and basic competency in the language but also empowers sections of the underprivileged masses. Knowledge of English as a language, I believe, is a ladder to higher education and jobs. It reduces the gap between haves and have-nots.

Training Courses for Competitive Exams

As minister I was fortunate to meet many individuals, and it was my good fortune that I was able to convince many of them to help us in our endeavours to improve the education system in Goa. One person I met was the chairperson of the Central Staff Selection Commission. In conversation I asked her why was it that Goans were not getting selected in the Staff Selection Commission or for the IAS or the IPS or even the other services. There had been Goans earlier in these services and they held very high positions, but they answered these exams from other parts of India. I asked her a point blank question, whether it was because the IQ of Goans was low, and it was for that reason that they were not doing well. Her reply was simple. She told me that the Goan students were doing very well, that they were equally intelligent but the reason why they are not getting selected was because we in Goa were not training them to answer the competitive exams. In reply I asked whether she could train our boys and girls so that they are encouraged to answer the exams and she agreed.

It was also around that time that there arose a big controversy in Goa of whether the State should opt for a qualifying entrance exam for selection in engineering, medicine courses or whether they should go by the Standard XII exam result. There was a set of parents who were against it, who even approached

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the courts to get it cancelled. Even as this was going on, I was working towards giving our youth a chance to compete with the best. The reply of the Chairperson of the Central Staff Selection Commission had led me to think and I was looking for solutions.

At that time, BITS Pilani had set up in Goa and fortunately I met the Director of this institute and I asked him a similar question, of why Goans were not getting admission in his institute. As we were discussing, I put forward a similar request of them training our Goans and he volunteered to train our teachers for free. That year, every higher secondary teacher in Goa was trained subject wise by BITS Pilani. After the teachers were trained, the Director of BITS volunteered to train students of that current batch who were interested in answering the entrance exams, the training could, of course, not be for all. I then requested the schools to send the interested students for training. Many students opted for it, they were trained by BITS Pilani and CDs of material were given to the students. The results of this were phenomenal as that year many Goan students got selected to the IIT and other professional colleges. From that first batch of training, around 17 or 18 got selected in BITS, some eight or nine got selected for IIT. In the earlier decade not a single Goan had got into IIT.

Overjoyed I invited the students and parents for a felicitation and announced that Goa government would bear the cost of their further studies, whatever course they decided to carry on their future studies in, and wherever it was that they wanted to study. The idea was to get Goan youth to come up. The State was looking at this transformation with astonishment. For years there had been no Goan students getting into their institutes of higher education and suddenly you had a crop of students getting admission. It was a start and a good one at that.

Goa University

We are today far from that ideal situation, especially in the field of higher

education. As already mentioned, our students enrol in institutions outside Goa for specialised courses. We have today a single State university and two private institutes of excellence in BITS Pilani, Goa Campus, and Goa Institute of Management that cater to students from across the country. To this we can add the Padre Conceicao College of Engineering that also draws students from across the borders, as also the IIT and NIT. Besides, Goa also has the advantage of two Central institutes – the National Institute of Oceanography and the Antarctica Research Centre. For the current discussion, let us dwell on the university.

I had said during my tenure as Education Minister that we need a good university. I was not happy with the university in Goa and I did criticise it for being a white elephant, primarily because they were not willing to introduce certain subjects like BBA, BCA. Other universities had these courses, we needed to be different and better than the others, so I proposed that other universities, from other States of India, to come to Goa and start these courses. It didn't happen at that time, but eventually, Goa University did start these courses.

Goa University is a State university. It is not amongst the top universities in the country and there has been stagnation, possibly due to absence of a competitor that could lead it to achieve more or it could also be that it being a government-funded institution the desire for excellence is absent. It has been an experience that State-funded universities are always missing the competitive edge, and this is possibly the reason here too. As a result of this stagnation, in recent years, Goa University has seen its ranking drop and it fell out of the top 100 universities under the National Institutional Ranking Framework (NIRF) 2022 announced in July 2022. It had featured in the top 100 universities in the country at the 96th rank the previous year and just 12 months later found itself in the 101-150 bracket in 2022. Goa University has never ranked high in the country, but its steady slide down the ladder, except for the recent A+ NAAC accreditation, indicates that the competitive edge is sorely missing. The university may be in position to claim

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that its number of graduates and postgraduates is increasing, even the number of doctorates could possibly be high, but the focus of an institute has to be on quality rather than quantity, a maxim that should be applicable across all levels.

There are various issues that need to be paid attention to in the university. Though it is an autonomous body, there is no complete autonomy. It depends on financial allocation from the government and unless the funds are increased substantially, even to be in consonance with grants to universities in other States, the financial restrictions will further impede its progress. The university has not been keeping pace with the changes in industry. Its programmes are still under the broad and traditional streams, with little innovation. That the students of the Goa Institute of Management are preferred over the MBA post graduates of Goa University illustrates the standard of the Goa University. On the other hand, there is a surfeit of engineering colleges in Goa, all attached to Goa University, and this is borne out by the fact that they cannot complete their intake of students and seats have been going vacant. One could not imagine this just a few years ago.

The issue here is the lack of industry alignment by the university. Such linkages are the key not just to raising the level of education, but also making its graduates and postgraduates ready for employment by providing them with the required skills that the industry is seeking. Goa University has to therefore position itself as the main source of candidates for recruiters. It cannot happen in isolation, that is, it cannot be only the university that takes the lead. Industry too should work along with the university in this. It should work as a partnership, where industry not only looks towards the university to provide a workforce, but enables this by co-hosting centres of excellence and co-developing courses. The current practice of internships should therefore be raised to a higher level. Simultaneously, industry can partner with the government to fund or sponsor research programmes, that need not necessarily be attached to the university but

with other centres of excellence.

This also calls for diversification and while the university has introduced a choice based credit system, it needs to prepare Goan youth for the employment market and so innovate with courses. As already mentioned, Goa has national centres of excellence in the form of the National Institute of Oceanography, Centre for Antarctica Research, that need candidates for their centres. It should be Goa University's endeavour to provide the staff for these.

Conclusion

My source of inspiration in everything I do, especially education, has always been my mother, a model and a guide, who worked hard to bring me and my siblings up and educate us. I recall that she would also insist with the neighbours that they should educate this children. If I am somebody today, then it is because of her and her insistence on education. If one woman could do this, then I feel it is my mission to do more for Goa and Goa's children. I did what I could, but there is much that still needs to be done.

I had a very short term as Minister for Education, not even two full years. I took charge of the portfolio on June 18, 2005 and it ended on June 2, 2007. Despite the acute limitation of time, I had a Herculean task cut out for me to draft the Education Policy with more than 60 interventions or schemes with the sole purpose of 'improving the quality of education' in the State of Goa, which was abysmally low. Implementation of the new NCERT syllabus as per the National Curriculum Framework 2005, establishment of SCERT of Goa and other schemes was undertaken on a war footing and all these helped me build a reasonably strong foundation for education in Goa. I believed then, and I still do, that it is our sacred duty to take all these initiatives forward and conceive more, so as to make Goa a centre of excellence in education.

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Today, the challenges across all levels of education are several and at the higher level even severe. Constantly we read of faculty vacancies that need to be filled up, of lack of infrastructure and how the integration of digital learning is progressing at a slow pace in Goa. Most of these existed at the time I was holding the education portfolio and I met the challenges. The results of those initiatives were visible, but it is apparent that the same mission mode on which I took on education was not continued by my successors. At that time, education was taken to the remotest corners of Goa so that the underprivileged were not left behind. The Cyberage Scheme equipped Goan students with tools to compete globally. The dropout rate decreased and the NCERT syllabus raised the standard of education. The introduction of English as a subject at the primary level helped our children function more effectively in a globalised world, where English is the key to success.

The Education Policy and related schemes are ample testimony to the nature and extent of commitment I made as Education Minister and Chief Minister, towards improving education in Goa. It was my endeavour, and it still remains, to see that the dream of every child is nurtured and fulfilled through government intervention. It is my desire and I appeal to civil society, to join hands and make education a mass movement and to make Goa the best State in the country for education, a State where students from across India will want to come to study.

The trend today is in internationalisation of education, where top universities set up branch campuses in countries other than those of their origin. Goa is suited for such campuses, we need to invite such campuses in Goa. Imagine a Goa, a decade from now, where some of the top colleges and universities having campuses. Not only will this benefit the youth of Goa, but also bring students from across the country and abroad to the State. These will not be permanent residents, they will stay here for the duration of the course and then return to their homes or travel elsewhere for employment.

In our country, there is the right to 'right to education' but it is also important, as Prof Raghunath Mashelkar had once said, that there be 'right education' and 'right way of education'. I am in agreement with that. Goa has to aim for the right education and the right way of education. Our education system has to be dynamic, ready for change, and flexible, ready to absorb the changes and from there deliver to the students. In the age of Artificial Intelligence, we have to equip our human intelligence to meet the challenges of the world.



The basic economic resource—the means of production—is no longer capital, nor natural resources, nor labour. It is and will be knowledge.

– PETER DRUCKER

KNOWLEDGE, THE KEY TO SUCCESS

Making Goa not just a literate State
but a Knowledge Society

Delivering a speech in Delhi I had said, ‘The new winds of change are sweeping all over the country from a regulated economy to a free economy, where the world has become a global village. The licensing raj, the inspector raj have changed to a free economy, wherein the private initiative and the private enterprise form the centre stage. The government is only acting as a facilitator.’

Having said that, I had to also act, put into action what was in my mind. I could see how the word was galloping ahead and I didn’t want Goa to remain behind. We had to keep on par with the transformation, or even be ahead of it. It was never going to be an easy task, but there was Dr. Manmohan Singh as Prime Minister of our country, an erudite and capable leader, and he was ably leading India into the 21st Century, with a vision that was unrivalled and a charisma that made you want to follow him.

The advent of Information Technology towards the end of the last century, Artificial Intelligence that seeped in soon after, a Communications Revolution that has reached every corner of the country, the world had become a global village and therefore it was necessary to assess in Goa the supply gap in terms of trained manpower and in particular in reference to the manpower gap. We normally only looked out for the quantitative gaps—where the supply exceeded the demand—but it was even more essential to assess the qualitative gaps and this was a great challenge for the educational system.

We required a revolution of sorts in the State of Goa to leapfrog over the other States and be on par with the best. In that context, as Education Minister,

I proposed that we should form a Knowledge Commission in Goa and one such was constituted. But first a background and a little history on the subject of knowledge and India, with reference to Goa.

Understanding a Knowledge Economy

A World Bank study notes that a Knowledge Economy is one that creates, disseminates and uses knowledge to enhance growth and development. Broadly, it covers all economic sectors which harness and use new and existing knowledge to improve productivity and increase wealth. This could be agriculture, industry and services. At the heart of the Knowledge Industry is the human brain.

Here it is pertinent to quote Thomas L. Friedman, author of the book *The World is Flat*, who wrote, ‘If more countries can get a few basic things right – enough telecom and bandwidth so their people can get connected; steadily improving education and decent, corruption-free economic governance; and the rule of law – and we can find more sources of clean energy, there is every reason for optimism that we could see even faster global growth in this century, with many more people lifted out of poverty.’

For the last 200 years, neo-classical economics has recognized two factors of production—labour and capital. This has now changed, and knowledge and information are increasingly replacing capital and energy as the primary wealth-creating assets, just as the latter too replaced land and labour earlier. In addition, continuing technological developments have transformed the majority of wealth-creating work from physically-based to ‘knowledge-based’, where knowledge is now clearly the key factor of production and the key sector of industry. With increased mobility of information and the global work force, knowledge and expertise can be transported instantaneously around the world, and any advantage gained by one country or company can be eliminated by competitive improvements overnight.

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This is, in essence, globalisation as Thomas Friedman has pointed out in the same book. The only comparative advantage the country, state or company will enjoy will be its process of innovation—combining market and technology know-how with the creative talents of knowledge workers to solve a constant stream of competitive problems and its ability to derive value from information. The world is now an information society in a knowledge economy where knowledge management is essentially for growth and survival.

A historical context

In the 16th century, the Portuguese who captured Goa marvelled as to how in Goa, the people had reclaimed land from the ocean and the rivers much before the Dykes of Flanders in The Netherlands. We have to understand and appreciate that Indian civilization was basically crafted by and around knowledge. Dnyana in Sanskrit, or knowledge, was a central element of the ancient system of yoga and the system of governance. Land, water and human skills were the central pillars of one of the wealthiest ancient civilizations of the world. Indian civilization could sustain its long tryst with history essentially through knowledge.

Takshila was the oldest university established centuries before the Christian era. Its huge faculty and an international reputation was built around the vast edifice of knowledge which attracted students from many parts of Asia and beyond. The ancient texts, whether on statecraft like Arthashastra, Panini's remarkable grammar, Patanjali's Yogasutra, Charaka's medical text Charakasamhita and many others stand testimony to the rich historical tradition of a knowledge-based civilization whose creativity is better recognised today than during the two centuries of European domination.

The rich Indian knowledge base of agriculture, water management, traditional manufacturing and education made India, according to Maddison Angus, the world's largest economy in the first millennium, producing over a third of the

global GDP. India's share fell after 1500 especially at the end of the Moghul Empire around 1707. Europe, and thereafter the United States of America, took the lead. For whatever reasons, India missed the Industrial Revolution. However, the classical Industrial Revolution itself began to run out of steam by the 1980s.

Human civilization is now moving to the next phase of evolution which is appropriately called the Information Revolution but more appropriately, the Knowledge Revolution and Knowledge Economy. The heart of this phase is rightly called the 'Brains Business'.

It is this historic transition which Goa needs to take full advantage of like the rest of the country. Global data suggested that India was most advantageously placed for gaining full benefits of the new opportunities of mind boggling proportions. Even China was expected to run out of 'demographic bonus' by 2010, while India is expected to retain its benefit until 2040 by which time its population would be around 1.6 billion people. Global forecasts projected Indian economy to be the third largest in PPP terms at 12-13 trillion U.S. \$ by 2020. India had the potential of being the world's largest economy by 2050.

Inspired by Prime Minister Dr. Manmohan Singh

In August 2005, at the launch of the National level Knowledge Commission, then Prime Minister, Dr. Manmohan Singh, in his remarks made several seminal statements that inspired me to do something similar for Goa. Explaining why the 21st Century would be the 'Knowledge Century', he stated, "I believe that this proposition implies that it is not military power or economic power that will in fact determine a nation's place in the world now in making, but its 'brain power'. He further said, 'The ability of a nation to make best use of its brain power will shape its place in the world in the present century.'

Dr. Singh went on to explain that in an ageing population phase of even China

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and countries of South East Asia, it might be India's opportunity to leapfrog in the race for social and economic development. 'A Knowledge-driven generation will be an asset... Hence, we must invest in building the knowledge base of our coming generations', the then Prime Minister had said and emphasized that there was need to improve access and excellence at all levels, from primary to higher education and research. He had cautioned that 'our universities and centres of excellence are falling behind the best in the world, both in terms of human capital and in terms of physical infrastructure'.

Dr. Singh pleaded for 'creative ideas to promote the knowledge base of our economy, and took it further by stating that beyond university, colleges and schools, there are other elements of a Knowledge Economy.

In a similar vein, Dr. Singh in May 2006, in his address at BITS Pilani's Goa campus made some specific references to Goa stating, 'Goa has enormous potential in its traditional areas like tourism and fisheries, and also has potential in knowledge-based industries' and that 'the emerging knowledge society will require graduates with basic training in mathematics, science and engineering'.

He warned of the 'manpower gap' emerging at various levels of the economy and said that 'Apart from the quantitative gaps, qualitative gaps are also emerging' and called for expansion and improvement of the educational system.

Dr. Singh, during his tenure as Prime Minister, repeatedly stressed the steps India needed to take to become a Knowledge Society and its economy the Knowledge Economy. The implications of this paradigm shift had yet to be adequately understood. Ignorance and Knowledge Economy could not be facilitators or even a possible combination. As Lee Kuan Yew of Singapore stated, "The new divide in the world will be between those with knowledge and those without."

Which growth path India, and Goa in our case, were to undertake would depend on how well the government, the private sector and the people could work together to craft a design of where the economy should go in every sector.

Sub-Committee on Knowledge Economy

The reconstituted Planning Board of Goa under the Chairmanship of the then Chief Minister Mr Pratapsingh Rane, constituted a Sub-Committee on Knowledge Economy, under the Chairmanship of Dr. V.A. Pai Panandiker, with the following as members, Mr Alban Couto, Dr Satish R. Shetye, Mr Peter D'Lima besides the Secretaries of Education, Information Technology, Industries, Science & Technology, Managing Director of ITC and Director Planning.

The Sub Committee had two meetings based on the paper prepared by Dr V.A. Pai Panandiker and at its third meeting in June,2006 considered and approved the Draft Report on the Knowledge Economy.

While much of the above has been taken from the report of the Sub-Committee on Knowledge Economy, the following recommendations were made by the Sub-Committee and are specifically related to the Knowledge Economy. These recommendations were made, without underestimating the key role of a sound 'public order' as the underpinning of the new economy.

- The Government of Goa must explicitly recognize the Knowledge Industry as the most important industry for the future development of Goa. This is where more and better employment, wealth creation and the future of Goa will be. Once it accepts the directions towards Knowledge Industry, the entire infrastructure both hard and soft, especially education and health, must receive highest priority to attain global standards.

- Goa should be 'opened up', in the language of the Chief Minister, Pratapsingh

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Rane, for investors in the Knowledge Industry without unnecessary controls and regulations. The Government of Goa should create enabling conditions for attracting as well as sustaining the Knowledge Sector and Knowledge Economy as a whole. The details and specifics could be worked out. This should include setting up Technology Incubation Centres especially for priority sectors like Education, Health and Agriculture.

- Knowledge Industry of Goa will require both good governance and the crucial physical and intellectual infrastructure especially land, power, water, sanitation and above all human resources, basically, trained 'Knowledge Workers' in agriculture, manufacturing or services, including, in health care, education and Information Technology. Goa must take specific steps to create both physical and intellectual infrastructure and make such investments attractive. This means fewer governmental controls and bureaucratic regulations. Goa Government should also try to create or support 'Knowledge Catalysts' in each sector.

- The Government of Goa must encourage private and even international investment in the Knowledge Sector as Singapore has done. It essentially means 'opening up' Goa for setting up advanced educational, health and related institutions which alone can create and sustain the 'Knowledge Workers'. Monopoly of any institution must be replaced by making it easy for new universities or educational institutions, whether domestically sponsored or otherwise, to be established in Goa. As a destination for the Knowledge Industry, Goa should have a policy for Excellence in Education. Excellence should also become the criteria for affiliation with reputed educational institutions around the world. This policy should in no way deflect Goa from its policy of social justice through State-sponsored educational and other supportive programmes for the weaker sections of the Goan society.

- The Goa Government should simultaneously encourage Knowledge Industries

of which IT is a good and well known symbol. Already, some IT parks have been planned. It would be desirable to go beyond IT parks into Knowledge Cities or Knowledge Industrial Parks in Goa where not only IT but other Knowledge Industries like biotech, nano technology, pharmaceuticals are invited to Goa. Supporting services of health and education are highly essential simply because Knowledge Industries will go where the Knowledge Workers are available. The Government should, in consultation with the Union Government, decide on incentives, including tax incentives to create such new facilities including Educational SEZs or Knowledge SEZs.

- The State Government should particularly encourage global R&D Centres in Goa. These R&D Centres should be for all sectors including agriculture, water management, energy, new technologies in manufacturing, Knowledge Industries etc, depending upon who finds Goa attractive for doing so. The role of the Government should be strictly of 'enabling' and not of control and direction. Investment in Knowledge Industries are highly sensitive to undue governmental controls and regulations which will make Goa an unattractive destination. The government could write to all major global corporations offering such facilities and create a website for the purpose.

- In order that the people of Goa get adequate benefits of the new Knowledge Industries, the Government of Goa should develop a well-conceived programme of upgrading the quality of its education beginning with the primary, the secondary and higher secondary levels so that the present dropout rate of nearly 37 percent in classes I to X is systematically reduced and, at the same time, the skills of the Goan youth at various levels are enhanced. Goan teaching curriculae, pedagogy and quality of teaching at all levels, primary, secondary and tertiary levels, are obsolete. As Dr. Navin Nigam, then Vice Chancellor of Goa University pointed out, the Goa University teaches at undergraduate levels what should be taught at the high school level and at the post graduate level what should be taught at

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the undergraduate level. Knowledge workers, in any field or sector including agriculture, cannot be built around low levels of knowledge and skills. University curriculae must be regularly updated and upgraded in consultation with the concerned industries. Goa government must immediately take steps to upgrade Goa's educational industry to global standards. This, in our view, is entirely doable and should be given highest priority.

■ In order to create specific 'enabling' conditions for the Knowledge Economy, the Goa Government could request either domestic consultants or international consultants working in this field in India to go into other specifics without impeding or delaying the implementation of the basic policy to open up the Goan economy for the Knowledge Industry.

■ There are a large number of subsidiary recommendations which could be gone into once the government accepts the basic policy of making Goa an important player in India's Knowledge Economy. Indeed, Goa should have a policy of making the state an 'Educational Hub' so that the subsidiary action can take a concrete shape. This should include a policy of enabling international institutions of excellence to set up their network in Goa while encouraging Goan institutions of excellence to set up campuses abroad, as Manipal has done.

■ Finally, since there is a large 'knowledge gap' in Goa about the central issues of the Knowledge Economy, it will be useful to debate this issue widely in the state, especially, by the State Assembly and the people who themselves, under our Constitution, are the ultimate sovereign.

Constituting Knowledge Commission

The first Knowledge Commission of Goa was formed by me, just three months after Dr Manmohan Singh had declared the Knowledge Commission for India. I was inspired by him and had made Prof. Peter Ronald de Souza the chairman.

The Knowledge Commission had Prof. de Souza as chairman with Fr. Romaldo D'Souza, Prof. G. V. Prabhugaonkar, Bazil D'Cunha as members. Dr. Celsa Pinto was the member secretary while Dr V. A. Pai Panandikar was appointed as Advisor.

The Commission was given powers to advise and make recommendations to the Government on:

- Promote excellence in the education system in Goa to meet knowledge challenges of the 21st century.
- Improve the management of institutions generating intellectual property.
- Promote application in agriculture and industry.
- Improve the overall knowledge of our students by providing a world class Book Bank.
- Frame schemes for financial assistance to the schools/colleges to update their libraries.
- Conduct World/National level competitive examinations by using latest technology periodically.
- Provide coaching for such examinations.
- Provide special coaching classes for the National Level competitive examination i.e. IAS, IES, IFS(Forest), Probationer Officer Bank etc.
- To organize seminars workshops on various current national and international issues and provide up-dated knowledge to students on the subject.
- Provide financial assistance to scholar students to attend National international Seminars Workshops.
- To give scholarships to meritorious students.
- To provide financial assistance for purchasing world class books CDs etc.

Conclusion

For Goa, as well as all of India, the future will depend upon how all

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the stakeholders, especially the people, work together to create a common understanding of where the economy should be headed and what it needs to do to get there, and it's definitely a Knowledge Economy that we should prioritise.

Transitioning to a Knowledge Economy will neither be quick nor easy. South Korea took about 15 years to do it and India is looking to get there by the year 2047, the centenary year of Independence. We still have over 20 years to that deadline, but against the fact that India is ranked at 97 of 154 countries in the UNDP's Global Knowledge Index 2021, the road ahead is indeed very long. That, however, instead of being a deterrent to the country, should inspire us to work harder to achieve success.

Simultaneously, Goa should set targets of its own to transition to a Knowledge Economy. Here too, there is still a lot of effort that will be required for Goa's economy is still dependent on some of its traditional industries.

India Brand Equity Foundation, in its report for the financial year 2024 noted that 'Goa's economic growth is driven by the strong performance of its industrial sectors such as fishing, agriculture, tourism and pharmaceuticals'. Fishing and agriculture are the traditional occupations of Goans and while it is heartening to see that these are the major contributors to the economy, it is disheartening that these two are still not operating at the optimum level with technological advancements that have occurred. Had technology been utilised adequately, we could have been self-sufficient in various areas. The idea of Swayampurna Goem (self-sufficient Goa) cannot be achieved without technology being given a massive push.

The India Brand Equity Foundation report further stated that while Goa is a 'globally recognised leisure destination', the State 'has an established base for the pharmaceuticals industry and an emerging destination for knowledge-

based industries such as biotechnology and IT'. The key term here is 'emerging destination' and it frustrates me to read that in 2025 Goa is still an emerging destination for knowledge-based industries such as biotechnology and IT. By this time, Goa should have been an established centre for both industries. We have the human resources for this, all we need is to make those serious efforts to raise Goa to another level. We have had close to two decades during which Goa could have soared high, as an IT Policy and a Biotechnology Policy were prepared between 2005 and 2007 and a State Knowledge Commission formed in 2005. Does this mean that the achievements since then have been almost non-existent? We might not have emerged as a Knowledge Economy by now, but we should have been established as a destination for knowledge-based industries.

Goa was an early starter in both sectors—as will be seen in subsequent chapters—but did not have the strength to stay on in the race. It may, however, not be too late, but then the State has to get back onto the track and finish that race. It can be achieved, there is nothing, other than the State's own reluctance to improve, that sidetracks the issue. With the emergence of AI in every field, both these sectors are the future and either Goa climbs back onto this bus and drives it forward or is left behind. There is no choice here, we have to act and act fast.



*Ensuring quality higher education is
one of the most important things we do
for our future generations.*

– RON LEWIS

STRIVING TOWARDS KNOWLEDGE AND EXCELLENCE

A National Christian University,
that fits within the framework of the
National Education Policy 2020, can
propel Goa to educational excellence

In January 2025, Chief Minister Dr Pramod Sawant announced that there were plans to set up two cluster universities in the State. Since a cluster university is the combination of two to five colleges from a district to form a university, one can assume that what the government has in mind is a university for each district. However, given the current ranking of Goa University, the small size of our districts, would cluster universities be practical or even the solution to the current situation? Instead of looking at cluster universities, wouldn't a more practical solution lie in having a Central University in Goa, especially since ours is the only State that does not have a Central University.

Goa University was established in 1985, and 40 years later it still remains the sole accrediting university in the State, and being a State University it is the State that has to bear the financial implications. It is only recently that the government, after enacting the Goa Private Universities Act, has given its clearance to some private universities. While that may be a good move that will aid in the larger picture of converting Goa into an educational hub, as has been envisaged by successive governments, there is one question that has been bothering me, and that is: Why is Goa holding back from demanding that a Central University be established in the State? For a Central University, all Goa would be required to do is provide the land and the Centre would assume the responsibility to establish the university, finance it and make it operational.

Goa remains the only state in the country that does not have a Central University. In 2005, during my tenure as Education Minister of Goa in the Congress government, I had made a representation to the Centre requesting the

establishment of a maritime university in Goa. In response to that a proposal was requested and a complete proposal was prepared and sent to the Centre. But my tenure as Education Minister was short as following elections in 2007, I was no longer part of the new government that took office. The State government did not follow it up with Central government and the same maritime university, largely on the lines of the proposal that Goa had made, was established in Tamil Nadu in 2008.

Yet, in 2009 Goa was given the opportunity of having a Central University. There was a Congress government at the Centre and State had been offered the option of converting the existing Goa University into a Central University. There were many who were in favour of this, but there was also a lot of opposition to the proposal and in the din that was created, with arguments for and against flying from both sides, the proposal got derailed. Goa missed an opportunity and following that there has been no other such offer from the Centre to Goa.

Benefits of Central University

I would like to briefly discuss why a Central University would be immensely beneficial to Goa. It is pertinent to note here that a majority of the Central universities are ranked higher than State universities. Central Universities are created by an Act of Parliament, come under the jurisdiction of the Ministry of Human Resources and Development's Department of Higher Education and the funding is distributed by the same ministry through the UGC.

As a result of the Central funding, the facilities at these universities—the infrastructure as well as research, science labs, hostels and libraries—are markedly better with cutting-edge technology, and as a consequence attract renowned academics and lecturers, while offering students from all economic backgrounds the chance of quality higher education. Central universities also offer students the opportunity to be part of societies and clubs of their choice, giving them a

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vibrant life outside of academics. In addition the universities are autonomous, giving them the authority to take decisions.

Proposal for a National Christian University

It was during my brief stint as a member of the Rajya Sabha, between 2021 and 2023 that I was able to raise the issue of a Central University for Goa with the Centre. Though representing West Bengal in the Upper House of Parliament, I proposed to the Union Minister for Education the constitution of a National Christian University in Goa.

The proposal for a National Christian in Goa that was spelled out by me is discussed in the following paragraphs, to provide a better understanding of why it was made.

India's religious majority is made up of Hindus comprising 82 percent of the population. Besides this, the Government of India perceives six distinctive religious minorities—Muslims (11 percent), Christians (2.32 percent), Jains (0.41 percent), Sikhs (2 percent), Buddhists (0.77 percent) and Zorastrians (0.006%). These communities, by numerical criteria are known as religious minorities and are permitted to establish and manage educational institutes. These are not only recognised religious minorities but the Constitution of India, under Articles 29 and 30, extends certain protection to Minority Educational Institutions, safeguarding the cultural and educational rights of the minorities.

Article 29 provides for general protection to the minorities to conserve their language etc, while Article 30 explicitly gives minorities the right to establish and administer an educational institution of their choice. What this signifies is that a religious minority can choose to establish an educational institution to serve their religion, language and culture and also impart a thorough and good education to their children, to become eligible for higher university education

and go out in the world, fully equipped with such intellectual attainments as will make them fit for entering the public services. Such educational institutions will necessarily include imparting general secular education.

The objectives behind the provisions of Art 29 and 30 of the Constitution are to preserve the integrity and unity of the country so that the minority communities do not feel isolated and separated; to create a feeling of belongingness such that they never feel overwhelmed by the majority; so that minorities can best conserve their culture, script, language through educational institutions and to instil certainty among minorities.

The rights granted to minorities under Art 30 include the explicit right to set up or establish and regulate educational institutions of their choice and that in giving aid, the State shall not segregate/discriminate against any educational institution run or administered by minorities. It further gives the choice to set up such an educational institution as will serve both the reason to be specific, the reason for conserving the religion, dialect or culture and the reason of giving an intensive standard education to their children as stated in the Kerala Education Bill 1957.

India also has a National Commission for Minorities, that is tasked with safeguarding religious minorities. This Commission, in its January 13, 2018 annual report, called for the establishment of a government-funded university primarily for Christians, justifying the recommendation by stating that such an initiative would be in keeping with existing state-funded universities such as Aligarh Muslim University and Jamia Millia Islamia Universities.

The reasons for a Christian university are many. Although Christians are a tiny minority in India's approximately 1.3 billion population, they are the second largest minority community after Muslims. We have in India today, about 27

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million Christians and 60 percent of them are socially poor Dalits and hence, a university dedicated to the Christian minority could help the educational advancement of financially poor Christians.

Besides, a Christian University is also needed to preserve the Christian culture, script and language through institutions of higher education; to provide opportunities for members of the Christian community to excel in higher education; to help the Christian Community enter in and contribute to public services; to build a 'Christian Indian Nationalism' anchored in Constitutional values and impart Christian value education and culture; to create the kind of education where a generation will think and behave independently; to create a strong basis of social sciences for the development of society.

Such a university can also cater to higher standards of teaching-learning, integrity and focus on newer disciplines with international collaborations. Besides, it can prepare students for competitive government examinations and for Christians to get into civil services and contribute towards administration and policy making, since there are just a few Christians in the civil services. It can also help create a think-tank to contribute by way of alternative policies in important sectors and plan and anticipate for the future, while creating a support system of Catholic doctors, lawyers, planners, social scientists, administrators, strategists and citizens to help in nation building.

What is important is that the National Commission for Minorities has sought a seven year financial assistance programme to establish new universities for Christian communities, who already run their own educational and health care facilities. The Commission recommended that the government-funded universities could prioritise the education of Christians while also admitting students of other faiths and said that the government should collaborate with the Catholic Church in India which runs some 400 colleges and 15,000 or 36,000

Christian-managed schools.

Goa as the site for a National Christian University

Aware of all this, I proposed not just a Christian University, but suggested that it be set up in Goa and the reasons for selecting the state are many. Goa, as has already been pointed out, has just one University, a State university and not a Central university. Every other State, including the small North Eastern States, have at least two universities—a State University and a Central University. Goa University will soon not be able to serve the growing population of young people whose educational needs are also being further finetuned with innovation and developments in the world.

Further, Goa has a substantial Christian population, which makes up the second largest group after the Hindus in the State, with the number estimated at 6,55,400 of a total population of 14.59 lakh. Besides, Goa has a 100 percent literate population. In the wake of the high literacy rate, its students require more avenues and a competitive edge to excel in higher education. Also, a substantial number of colleges in Goa are Christian minority colleges and these have formed the backbone of the educational system in Goa, not just in current times but even during the colonial rule.

The Archdiocese of Goa and Daman has 144 high schools that are spread out in almost every village, besides there are 25 higher secondary schools and 12 colleges run either by the Archdiocese or Catholic societies. Of the latter, the St Xavier College, Mapusa and the Fr Agnel Institute of Technology and Design, Assagao, in North Goa and the Rosary College, Navelim, Carmel College, Nuvem, the Don Bosco College of Engineering, Fatorda and the Padre Conceicao College of Engineering, Verna in South Goa, are some of the most reputed Christian Institutions of higher education in Goa, drawing students not only from across the State but even from beyond the State's borders.

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The proposed Goa Christian University is aimed at being a national institution that will offer progressive, multicultural, state of the art, skill-based education, entrenched in the Goan nationalist ethos and nationalist ideals of the Indian Constitution makers and will be open to students from all communities, irrespective of any denominations. Its mission will be to prepare students with a philosophy of life rooted in the Indian and Goan tradition, with life skills that will brace them to meet the challenges of a resurgent India, while remaining a non-affiliating university.

On the lines of national minority universities, this proposed university could shape the lives of hundreds and thousands of students on the basis of a shared culture. Dr. Zakir Hussain, when supporting the establishment of Jamia Millia Islamia University had said, “The movement of Jamia Millia Islamia is a struggle for education and cultural renaissance. It will prepare a blueprint for Indian Muslims which may focus on Islam but simultaneously evolve a national culture for common Indian. It will lay the foundation of the thinking that true religious education will promote patriotism and national integration among Indian Muslims, who will be proud to take part in the future progress of India, which will play its part in the comity of nations for peace and development.” The institution today holds the torch of illumination giving shape to ideas and fostering innovation.

Similarly, I advocate that the National Christian University in Goa, to be established in consultation with and the support of the Archdiocese of Goa and fully funded by the Centre, would try to aim for the educational and cultural renaissance of Golden Goa which was the envy of the European powers in the not so distant past. It would try to evolve a national culture and enhance the patriotism and nationalism present in Christian Goans. Finally it would prepare the Goan Christians for future challenges and make them masters of the future.

Efforts in RS and Post RS Resignation

I was and still remain very serious about a National Christian University. In a desire to know whether there was the possibility of setting up a Christian University in India, I had raised a question in the Rajya Sabha seeking to know whether there was any such recommendation from the National Commission for Minorities in its Annual Report 2016-17 and also whether there was any proposal to set up Christian University in Goa. In reply, the Ministry of Minority Affairs intimated that there was no such recommendation by the National Commission for Minorities (NCM) and also no proposal for setting up of Goa Christian University in the state pending at the Ministry of Education. The reply, however, went on to say that the National Education Policy (NEP) 2020 has, inter-alia recommended moving towards a higher education system consisting of large, multidisciplinary universities and colleges, with more higher education institutes across India that would offer medium of instructions or programme in local/ Indian Languages and that the NEP also recommends increased access, equity, and inclusion through a range of measures.

The latter portion of the reply further serves to justify the proposal of setting up of a National Christian University in India. Such a university would be a great boost to the aims of the NEP and serve to give reality to the vision of the policy makers.

After I resigned from the Rajya Sabha I took this further and in a letter moved a proposal before the government of India on setting up a National Christian University in Goa and the reply that I received from them, dated August 11, 2022, gives me much hope as it states that the matter is under consideration. In view of this reply, it is now for the umbrella organisations of the minority educational institutions in the state to take it forward so as to make a National Christian University a reality in Goa. I, if necessary, would be willing to conduct a signature campaign requesting the Central Government to accede to this request.

Ethos of the Goa Christian University

As I visualise it, a Goa Christian University will be based on the enduring legacy of Christian Goan Nationalism. Here, it is important to highlight the role of Dr Francisco Luis Gomes a linguist, thinker, master of several European and Indian languages, doctor, writer, orator, economist, social activist, physician-surgeon, politician, who was born in Navelim, Goa in 1829 and went on to represent Goa in the Portuguese Parliament.

Dr Gomes was a proud Indian, even when Goa was reeling under the Portuguese colonial yoke and was yet to be integrated with Mother India politically, and the latter had yet to gain independence from colonial rule. His most famous speech, made in Europe brought to the fore his nationalism. He stated: *"I was born in India, once the cradle of philosophy, poetry and history, but now (under the British yoke). I belong to that race which created the Mahabharata and invented the game of chess, the two conceptions of the intellect that bear something of the Eternal and the Infinite. But this nation which formulated its legal codes in poetry and fashioned its politics in a game, is no longer alive. It survives, imprisoned in its own country, exhausted by its own fertility and eclipsed in the very splendour of its glory. This bird, fluttering against the irons of its cage, has lost its own feathers, on the wings of which it once soared above the Himalayas. Weeping over the freedom of which it has been despoiled and the light that has fled, this nightingale has forgotten its song, the strains of which once echoed in the heavens... I ask for India freedom and light...."*

This was the first Indian voice to demand freedom for India, much before the Sepoy Mutiny of 1857, that was later labelled as the first War of Indian independence. That voice of revolt and the persistent demand for liberty and freedom, which was the thrust of Dr. Gomes' characteristic, appears in almost all his variegated writings, whether in the matter of freedom of the press or of trade or any other action aimed at development of human and natural resources, giving primacy to the people and involving them in all development that mattered. It

infused in them a rare vital dynamism that shook the despotism of authority.

The Goa Christian University will embody this ethos and assimilate the thoughts of all Goan Nationalist thinkers who fought for uniting Goa with the motherland India.

Conclusion

If we are to make Goa a Centre of Excellence and a hub for quality higher education, and this is the thinking of the Knowledge Commission that had been set up in 2005, we have to give the young minds a different exposure and I believe that a Central University will be the best vehicle to get this done. As I see it, denying Goa a Central University and a Christian University is a hostile discrimination towards the State and Christians. There is no reason not to set up such a university in the state as it comes within the ambit of the New Education Policy of the government.

Seeking a complete overhaul of the higher education system, Section 9.3(a) of the National Education Policy, seeks to move 'towards a higher educational system consisting of large, multidisciplinary universities and colleges, with at least one in or near every district, and with more HEIs across India that offer medium of instruction or programmes in local/Indian languages'. This is exactly what I have been proposing through the Christian University. Further in 10.3, the NEP 2020 states that a 'university will mean a multidisciplinary institution of higher learning that offers undergraduate and graduate programmes, with high quality teaching, research, and community engagement. The definition of university will thus allow a spectrum of institutions that range from those that place equal emphasis on teaching and research i.e., Research-intensive Universities, those that place greater emphasis on teaching but still conduct significant research i.e. Teaching-intensive Universities.' The proposal for the Christian University does take into account all these and is perfect for Goa.

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It is my desire to see such a university set up in Goa, and I will continue my efforts in working with the Centre on the establishment of a National Christian University in Goa.





Jama Masjid:
A monument of the past
with future entwined



A FUTURISTIC GOA

“Government’s role should be only to keep the playing field level, and to work hand in hand with business on issues such as employment. But beyond this, to as great an extent as possible, it should get the hell out of the way”.

– JESSE VENTURA

RESPONDING TO THE SCOURGE OF JOBLESSNESS

Finding Solutions to Goa’s
Perennial Unemployment Problem

In May 2024, news reports revealed that pharma companies based in Goa had planned a recruitment drive in other States for employment in their units in Goa. This was not the first time that such an advertisement, of jobs in Goa advertised beyond the borders, had appeared. It had occurred in the past too. Employment, or rather unemployment, is always a convenient issue for the opposition to attack the government and the latter immediately took it up. The government announced that notices of show cause had been issued to the two pharmaceutical companies that had advertised and that amendments would be introduced in the Labour Act to bring in stringent fines on companies violating the law.

At the time of writing this, another employment-related issue that was raging in the news was the cash-for-jobs scam. Rather than display shock at this, I have to sadly admit that this did not come as a surprise and that it has been happening for long. In the Employment Policy that I had prepared in 1991, a good 34 years ago, I had made reference to exactly this stating: *‘So desperate is the situation of unemployment in Goa that one no longer is shocked to hear the rumours in the market place—that the level of patronage rather than personal merit often decides the fate of our job-seekers. That, horror of horrors, in this God-fearing Goa of ours is no longer a sin to offer and accept bribes to secure a job. The amounts mentioned are simply unbelievable. It saddens me, and it ought to sadden every decent person, that many of our youth have to start their career on the wrongest of wrong notes—paying tribute to corruption and venality.’* It does appear that 33 years later, the situation has only worsened.

In July of 2024, it emerged during a session of the Legislative Assembly that

1,59,676 individuals were registered for jobs with the Employment Exchange in Goa. This figure of unemployed, however, was challenged by the government itself. Chief Minister Dr Pramod Sawant said that inquiries had revealed that of the jobseekers registered with the Employment Exchange, 54,142 were engaged in private jobs but had retained their names registered with the exchange as they were seeking government employment. He added that of the remaining 87,270, there were 18,264 pursuing further studies, others were self-employed or were employed on contract with the government. The Chief Minister was confident that the number of unemployed in Goa would be between 30,000 and 35,000 and not the figure of those on the live register of the Employment Exchange.

Let's go back to just a few years earlier, when there has been a similar discussion. Sometime in the latter half of 2020, the Chief Minister, also Dr Sawant at that time, had admitted that there were about a lakh of youth registered with the Employment Exchange and that the bulk of them, three-fourths, were unemployed while the rest were looking for better prospects. So this too, like the recruitment advertisements outside the State, is not new. The figure of 1 lakh plus on the live register of the Employment Exchange has somehow remained constant for decades. This is precisely because there is a certain proclivity among the youth in Goa, and even in other States, to seek government jobs over employment in the private sector. Today, despite the fact that the private sector is turning more attractive, there still exist a number of youth for whom government jobs hold a fascination.

Whether it is one lakh or 75,000 or 35,000 unemployed youth, any of these figures is huge for a small state like Goa as it hovers between 5 percent and 7 percent of the total population. Viewed in such a manner, this is not a casual statistic that can remain on paper, but a crisis that needs to be dealt with all the possible seriousness, before it turns completely out of hand and unsolvable.

Unemployment and the Economy

The unemployment rate is always a good indicator of the health of the economy. Globally, governments act when the unemployment rate climbs to between 6 percent and 7 percent, and introduce stimuli to the economy that can create jobs. The year 2020, mainly due to the lockdowns forced by the Coronavirus pandemic, was a difficult year for the economy and any gains of the earlier years were virtually wiped off. It is apparent that the pandemic and the resultant lockdowns led to a number of job losses in the State and the country, as employers believed they were faced with no option to stay afloat other than laying off staff. The unemployment graph rose in the following years, but we are now in 2024 and the economy has stabilised to the extent possible, yet unemployment remains a major concern and of even more concern is that it is not being addressed in the manner that it should be.

Even though the International Monetary Fund (IMF) has projected India's economy to grow at a rate of 6.5 percent in 2024, this projection is not great when juxtaposed with India's best demographic dividend. India is young and so is Goa, as more than 60 per cent of the population in Goa is below the age of 35 years. There is, therefore, a high percentage of people in the productive age and more who will be joining them in the years ahead. The issue at hand is that Goa is not reaping the benefits of its excellent demographic dividend and there is urgent need to improve the human capital and enhance the skills of our existing manpower.

The International Labour Organisation Report, for 2024 states that the rate of unemployment among Indian youth is skyrocketing from 35.2 percent in 2000 to 65.7 percent in 2022 and further to a whopping 83 percent in 2024. This rate, to stress, is among the youth and not overall.

The unemployment situation in Goa, as can be seen from the preceding

statistics is alarming, especially since NITI Aayog pegs Goa's unemployment rate as being one of the highest in the country.

Rather than dispute the figures everytime, there is need to admit that this is an issue of utmost concern and work towards finding a solution. This is crucial, for if the unemployment numbers for a small State like Goa are high, then the disguised unemployment will be still higher and it would be difficult to identify this.

Unemployment Rate a matter of concern

To get a fair idea of how prevalent unemployment in Goa is, one has to look at the data that is periodically released by the Centre for Monitoring Indian Economy (CMIE) on its website. To make a fair comparison, we look at the CMIE data for January to March 2020 and then move to later years. Now, 2020 was the year that the COVID-19 pandemic struck, so unemployment was, as already mentioned, higher, so we shall ignore the unemployment rates of the months following March 2020.

According to data on the CMIE website in January 2020 the unemployment rate in Goa was 8.89 percent that fell to 2.81 percent the following month only to scale up again to 5.25 percent in March 2020. This was the month in which the virus first surfaced in the country and the first lockdown was announced. It is reasonable to expect that the unemployment rate rose in the following months and it even went up to 21.25 percent in May of that year, but that figure can be ignored for the moment.

In November 2022, a report released by Niti Aayog stated that Goa had an unemployment rate of 10.5 percent in 2020-21, the third highest across Indian States. When Niti Aayog said that 1.1 lakh youth in the state are unemployed, the Chief Minister had again said that of the 1.1 lakh registered with the State

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Employment Exchange, around 80,000 are employed in the private sector.

Data from CMIE, released in 2023 showed that Goa has the highest unemployment rate in the country, which was at 11.6 percent in January 2023 that climbed to 15.5 per cent in April 2023, and dropped to 13.7 per cent in August 2023. Goa's unemployment rate, at that time, was more than three times above the national average of 3.17 percent. In 2024, Goa's unemployment rate continued to be high. It is, therefore, safe to say that Goa has an unemployment rate that is a matter of grave concern and it follows that the State has to work to bring it down.

It doesn't end there as more data on unemployment exists. Reserve Bank of India (RBI) in the Handbook of Statistics on Indian States, said that Goa's average unemployment rate in rural areas was 113 percent and in urban areas was 87 percent for the year ended March 2023. This was against the all-India (adjusted) unemployment rate of 24 percent in rural areas and 54 percent in urban areas.

While governments in Goa have reacted to unemployment situations that have arisen, it is clear that most of the employment related programmes introduced at any time have come about through trial and error, with little futuristic planning and a long-term vision. This is a consequence of being reactive, rather than proactive, with the State polity unable to foresee situations that could arise in the future and plan for them. We have failed on the employment front primarily because we lacked the foresight to anticipate the future changes and the will to correct distortions at the right time. With a little vision it might have been very different. What Goa required, and now requires with a sense of urgency, is a sensible employment policy that works as the sine qua non of all developmental plans. The State cannot develop sectoral policies that target merely agriculture, tourism, mining or industry in the absence of a carefully laid out employment

policy. Any action to the contrary would amount to either putting the cart before the horse or making grand designs in vacuum. And though vision may have been lacking, there were stages in time when such vision did exist, when policies were framed but their implementation failed for varied reasons, mainly political.

Economic Mismatch

Since Liberation in December 1961, Goa has been developing at a fast pace which has created massive employment potential which the population of Goa could not sustain and so we attracted more than 50 percent of a migrant population which works out to approximately 8 lakh for a population of 15.78 lakh and on the other hand we have 1.70 unemployed registered on the live register of the Employment Exchange. Theoretically, therefore, if you minus the migrant population from the figures to the unemployment figures, you would have 100 percent employment in Goa. The unemployment figures are due to the mismatch, wherein on the one hand we have created educated graduates and post graduates who are unemployable.

In view of the above, many Goan youth are forced to migrate outside Goa to seek gainful employment. Some have taken the extreme step of surrendering their Indian Citizenship. The question we should be asking ourselves should be what forces them to go outside Goa and India? Quite simply, it is unemployment that is driving them away. It stands to reason that if they had gainful employment in Goa, they would stay back.

Draft Employment Policy of 1991

I go back to the year 1991, as when holding the Labour portfolio as a Minister in the Goa government, I had drafted an Employment Policy for Goa that envisaged employment for all by the year 2001. The policy was ten-year programme, but now 34 years later in 2025, we continue to struggle with unemployment, disputing data while the rate is only rising. When I pulled out that policy booklet from my

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files and re-read it, I realised that much of it continues to be relevant even today and that had that policy been implemented in full at that time, we may not have been facing the tough unemployment situation that we are struggling with today.

Personally, the drafting and implementation of the 98-page Draft Employment Policy 1991 was a sacred mission dedicated to each one of the thousands of Goan boys and girls who seek a job in their land of birth and seldom find one. The policy was released after a highly successful debate and discussion with media, academics, social thinkers and activists which enabled us to obtain the benefit of their constructive criticism and suggestions. The Draft Employment Policy was launched at a five-day Manpower Fair organised at Kala Academy in August of 1991, at which industrial establishments, educational institutions and social thinkers discussed it. This was followed by various solutions and discussions before implementation. I must confess that despite the political turmoil and uncertainties of that time—the 1990s was a very politically volatile decade in Goa—I personally attempted to implement most sections of the policy.

Here is a relevant portion of the prefatory note to that draft policy: *‘Goa is at the crossroads. It finds itself debating whether it can satisfactorily balance the exigencies of development and its age-old concern for the preservation of its environment. It also finds itself struggling to harmonize the concomitants of the improved levels of literacy and quality of life brought about by the policies of the post-colonial regime.*

‘The more worrisome of the concomitants of “progress” is the burgeoning army of educated unemployed youth, many of whom often discover in hindsight – and much too late to their regret – that they often lack the required aptitude, principally because they and their parents or guardians were bereft of the right perspective and vision at the right time. The time has come, to use a worn out American management cliché, “To do the right thing first time”.

‘The other worrisome aspect is that due to a wide variety of reasons there has been a heavy influx of migrant labourers, 30 to 40 per cent of the total population according to some estimates, and as a result social stresses and ethnic fissures are becoming discernible.’

The reason for reproducing this long passage from the policy is because, over three decades later—34 years to be precise at the time of writing—the situation in Goa is largely the same. It has not improved and it could even be showing signs of worsening. The fact that pharma companies are looking outside the State for employees is a case in point. Here is a question to ponder: When Goa is facing such a high unemployment rate, why should the private sector in the State look beyond the boundaries for staff? Clearly the private sector is free to look for its staff anywhere in the country. But, the first effort at recruitment must be made in the State where the firm or manufacturing unit is based. Should the private sector find that the talent it is looking for does not exist in that State, in this case Goa, and recruits from other states, that would be acceptable, but advertising outside the State at the very first instance is definitely not tolerable.

Returning to that employment policy, its ultimate objective was to guarantee every Goan ‘not merely the right to work but beyond it, the right to employment, to a life of comfort and dignity, of self-respect and utility to his State and his country.’ In doing this the hope was that a better work culture and an environment would be created, one that would be conducive to higher and better productivity. That policy intended to present Goa with a macro-picture of employment, projecting the likely opportunities that could arise in the future so that students, with the help of their guardians, would be able to plan their careers more sensibly.

Highlights of the 1991 Employment Policy

Some relevant points of that policy that could still be implemented as they remain relevant in the current situation are enlisted below:

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■ **Lien on Government Jobs**

A scheme to offer government servants liberal incentive to embark on entrepreneurial activities in the small scale sector, whereby they would be allowed to have a lien on their government job for a period of five years, as such a period would allow them to take a conscious and enlightened decision.

■ **Abolish contract Labour**

Abolish contract labour in a phased manner and have contractors and employers using contract labour to approach the Employment Exchange for new recruitments.

■ **Private sector working conditions**

Improve working conditions in the private sector to make it more attractive to jobseekers who are obsessed with government jobs. Ensure that the private sector would offer very good compensation packages, ideal working conditions, good environment, guarantee of job tenure.

■ **Protection from unfair labour practices**

Guarantee new enterprises protection from unfair labour practices for three to five years from the inception of their activities, with a logical corollary that minimum wages would be revised to realistic levels.

■ **Pre-submission interview**

Update the live register at the Employment Exchange by calling candidates for a pre-submission interview to scrutinise their employment status and only lists of eligible candidates be sent to prospective employers.

■ **Schemes for startups**

Encourage entrepreneurial activities by floating various schemes, including loans for startups, with support from banks and financial institutions, roped in

for the purpose.

■ Overseas Employees Corporation

An overseas employees corporation was proposed to guide and help Goans to get remunerative employment overseas and avoid getting cheated by agents.

■ Skill Training

Skill training and strengthening of technical education was to be done to create gainful employment for youth by devising courses and syllabi, based on employment projections, where the directorate would supervise vocational education in private colleges, conduct career counselling and liaison with employers for placements of job seekers.

■ Manpower Development Cell

A Manpower Development Cell was formed in view of the mismatch in employment in Goa. It was meant to assist in employment, as per the requirements of the industry so that youth could be trained and human resources developed in the State of Goa, and so assist the unemployed youth to get gainful employment. As a result Goans were trained in hotel management, pharma and electronics. A massive number of jobseekers were trained and an example of this success is ZACL that recruited a large number of Goan youth. This initiative was subsequently merged with HRDF and unfortunately collapsed with a change in government. Today, there are organisations under Skill India/Skill Development doing the same. In the Budget for the year 2024-25, the Union Finance Minister announced the scheme of special apprenticeship for youth with the corporates. This is something that I had proposed in the IT Policy and Biotechnology Policy and other employment policies, wherein the government would subsidise by Rs 15,000 per year, to a maximum of Rs 60,000 in four years, the salary of a Goan employed in the IT sector by a private company.

■ Human Resources Development Foundation

The Human Resources Development Foundation was formed and its main objective was to enable private training institutions and organisations in the State to register their courses in engineering, non-engineering, commercial, food and beverage, production and other services that were of six months to one year duration under one umbrella. There are currently over 60 private institutes training thousands of students in Goa through different short duration courses. These are other than the ITIs. This initiative was the first of its kind in Goa and prior to that, these private institutes had to be registered in Maharashtra.

■ OBC and Women's Corporations

OBC and Women's Corporations were created to help them plan and promote agro-based industries, augment storage, marketing and processing facilities so as to generate employment and eliminate rural indebtedness. The Women's Corporation would focus on socio-economic advancement of women by helping to procure, supply, distribute, agricultural produce; promote finished products and issue bonds and debentures, all to improve the lot of women in the State.

Bringing Konkani to ensure employment

The Employment Policy was to form the basis of all development plans and contribute to a clearer enumeration of the Industrial Policy which was to take into account the skills, aptitude of local youth and equip the youth for the future with skill requirement for the next one to ten years. The Employment Policy of 1991 believed that the greatest investment in the future of Goa, was in its youth and the Right to Employment would enable youth to see themselves as assets not only to their family, and the state, but even to their country, India. This policy had the potential to solve many of the lingering problems that Goa faces till date and was visionary in many ways.

Success may have eluded me on this front, mainly due to political reasons

and abrupt changes in government, but I was still able to bring about changes in recruitment rules in government service. One has to realise that the main benefit of making Konkani the Official Language of Goa was in employment of locals. As per the Indian Constitution no state can discriminate on basis of home state or deny persons employment if they are not from that particular state. The Constitution does not permit reservation of jobs in government service on this basis and the only way to circumvent that was making the working knowledge of Konkani compulsory for employment.

To make that happen, one had to link 'jobs for Goans' with the 'Konkani language' and that wasn't an easy task as it involved introducing a provision in the recruitment rules that would make knowledge of Konkani an essential qualification. In 1991, as Labour Minister I got the opportunity to do so, by making compulsory domicile in Goa and compulsory knowledge of Konkani requirements for all recruitment in government departments.

The issue of unemployment of Goan youth has always occupied my mind, whether as a student, as a labour leader, as a legislator or as a Parliamentarian. This was evident in the speeches I made in all my public meetings during the battles I have led in Goa, whether it be for Konkani or for Statehood. People might have forgotten my efforts and I do sometimes turn angry at the present situation but this is offset by the immense happiness when I see young Goans employed in Goa as top officers, BDOs, Mamlatdars, Collectors, and in other positions, as there were hardly any Goans in government way back in 1980. The state of total hopelessness that existed in 1980 for Goan youth changed when I brought the working knowledge of Konkani and 15 years domicile as compulsory for employment in government service. Afterall where there is a will there is hope and therefore, as I have said before, bringing in the employment policy was important but all the more important was going the extra mile on a mission mode. Merely paying lip service to the issue of unemployment and tabling a

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policy that had little vision was not my way of working. When I took up a task, I ensured that it got all of my attention and brought in the best of minds to advise on it.

Revised Guidelines for Registration in Employment Exchange

The first cabinet decision concerning prioritising jobs for Goans was revising guidelines for registration of job seekers in the Employment Exchange. I had noticed that many youth from other States were registering in the Employment Exchange on the basis of residence certificates and depriving our Goan youth of opportunities.

The relevant portion of the notification dated July 9, 1991 is reproduced here:

Registration in the Employment Exchange – New Guideline for domiciles certificates

Whereas the unemployment problem in the State of Goa has become so acute that even inspite of best efforts in this direction by the Government the problem remains unsolved.

And whereas even the vacancies created are being consumed largely be the persons coming from outside the State of Goa by producing residential certificates issued by the Mamlatdar on the basis of report of the Talathis certifying that they had been residing in the State of Goa for the last six months and on the strength of ration cards and that they are residing within the jurisdiction of the Employment Exchange.

And whereas it has been found that some of registrants stand in the Live Register of their own State, including in the State of Goa, thus enjoying the benefit of Employment Assistance so available in this State as well as the neighbouring States and thereby depriving the job opportunities to the local people.

Now therefore, in order to ensure that the people of the State of Goa get a fair deal

in this State in the matter of job opportunities and to do away with the practice of dual registration in respect of registrants from other States for employment assistance in this State, the Government hereby directs that no application of any person shall be registered in any Employment exchange in the State of Goa unless the person has resided in the State of Goa for not less than fifteen years at any time prior to making of such application. It is further decided that children of people of Goan origin who are residing outside the State shall be exempted from this restriction. The term Goan origin would imply at least either the mother or father should be Goan.

The certificate of residence of fifteen years in the State of Goa issued by the Mamlatdar of respective taluka shall only be accepted for the purpose of registration in the Employment Exchange.'

Ensuring Employment for Goans in the Private Sector

In 2001, when I was again in government I introduced schemes that were specifically targeted at employment for Goans in the private sector. Under the policy, 80 percent of jobs in the private sector were reserved for Goans and a Cabinet Notification enforcing this was published. Under this it was mandatory that the applicants should be able to prove 15 years of domicile in the state of Goa and demonstrate a working knowledge of Konkani. To make it agreeable to the private sector, entrepreneurs were offered incentives if they recruited 80 percent Goans, but for them to be eligible for the incentives the workforce composition would have to be certified by the Department of Labour. The incentives included 24-hour provisional registration for their units; Rs 15,000 per year, for every Goan youth employed in their enterprise, which amounted to Rs 60,000 for four years; Income Tax Holiday for five years; 25 percent subsidy of capital investment; Sales Tax Holiday for 15 years.

On the other hand, if private industries did not comply with the 80 percent recruitment of Goans, then their permanent registration was withheld and the

incentives were denied to them. This was a new development in the country and it was for the first time that jobs in the private sector were being reserved for persons from that State. Of course, industry was not happy with this, but to safeguard our youth, to ensure that they got employment, the government had to take some tough decisions, even if these were not palatable to the employers. We had the employees in mind and we were working for them. Subsequent governments attempted to undo this scheme, and hence today we again have recruitment drives outside the State of Goa.

But look at it again. Today there are schemes under Skill India or Start up India, similar to what I had envisaged decades ago. Ideas that were in the Draft Employment Policy of 1991 are today gaining currency in the country. For instance, in the Union Budget of 2024-25, its first Budget after the 2024 Lok Sabha elections, the new government of Mr. Narendra Modi announced employment-linked incentives that will create crores of jobs. Under this a trial scheme was announced, whereby the Central government will give a maximum of Rs 15,000 as salary for one month to the youth who gets the first job in his life. Besides this, the Budget also announced an internship scheme for 1 crore youth in top companies of the country. Prime Minister Modi, speaking on the Budget had said, “The government has announced an employment incentive that will create crores of employment opportunities. This budget will give a new dimension to education and skill development. We will create entrepreneurs in every city, every village and every home.”

How different is this from what we had envisaged for Goa 33 years ago? In retrospect, we were well ahead of our times in Goa.

Suggestions to Address Unemployment

Based on past experience and with an eye on the future, here are some simple suggestions that could be implemented to mitigate the situation of joblessness

in the State.

■ **Manpower Fairs**

We have today campus placements, where recruiters come to the institution and recruit the best talent. Even Goa University organises such camps. A similar idea is to organise Manpower Fairs, which was successfully experimented with in the past in Goa, organised under the aegis of the Labour Department. At such fairs, educationists, captains of industry, unemployed youth and other stakeholders such as managements would all come together. Jobseekers could approach the companies they were seeking out careers in and employers would get a larger and, as a corollary of this, a better pool to choose from. Careers fairs can also be organised for specific sectors like tourism that is Goa's largest employers or mining that is returning to operations, so recruiters and employment seekers would bring specialization. These could even be held in collaboration with industry bodies like Goa Chamber of Commerce and Industry, Small Scale Industries Association, perhaps even with specific industrial estate associations. I am certain that employers and candidates would appreciate such a fair.

Besides that, there can be workshops to train teachers towards career counselling. At the manpower fairs we held, two representatives from each school would be called to participate and these would then go back and train other teachers in career counseling. The fairs were held across Goa through various exhibitions such as Goa Vision, Golden Jubilee of the Independence of India Fair etc.

■ **Unemployment Assistance**

The Draft Employment Policy of 1991 also made provisions for Unemployment Assistance through the Goa 'Unemployment Assistance and Self Employment Scheme Bill 1991', for four years, monthly allowance for those registered and the option to avail of self-employment schemes. Besides, Goa University was asked to prepare students for the Civil Services examinations and design their own

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courses with an eye on employment potential.

■ Land Army Corporation

A first of its kind initiative, The Land Army Corporation, was to involve youth in the building of a Better Goa. It would facilitate interim employment for the unemployed, inculcate discipline among the youth and give them preference in government jobs. This scheme was adopted by later governments under a different name.

The moot question today, over three decades later is: Was it all worthwhile? Why is unemployment in Goa still rising so alarmingly high? Why are our youth, especially the educated ones, languishing or rotting on the registers of the Employment Exchange?

Challenging Situation

Following Liberation in 1961, Goa began developing at a fast pace and this created a masive employment potential that could not be met by the existing population of Goa, neither in numbers nor in employability. The State therefore, over the years, attracted a large migrant population that today can be approximated to be around 50 per cent of the the total population which works out to nearly 8 lakh of the population of Goa that is pegged at 15.78 lakh. On the other hand, we have 1,59,000 unemployed registered on the live register of the Employment Exchange. So theoretically, if you subtract the migrant population from the unemployment figures, you could have 100 percent employment in Goa, and still have enough to offer gainful employment to the migrant populaiton. The unemployment figures are due to this mismatch. On the one hand we have created educated graduates and post graduates on the other hand they have been made unemployable as they were not provided the right skills or training that industry was looking for. In view of this, a large number of Goan youth have in the past, and even today continue, to migrate outside Goa, to foreign countries,

to seek gainful employment. I have seen this happening and it has increased in recent years.

In 2018, the State of Goa was going through a dire financial situation. The economic meltdown had a direct bearing on the employment situation in the State and employment came to a halt as existing industries closed down and no new industries were being established. Persons who were employed were evicted from jobs due to closure of mining activity, industrial sickness and retrenchment of labour. This led to a degradation of people's wealth and a consequence was of people selling off their land and houses.

At that time I proposed the Goa Unemployment Allowance and Self Employment Scheme Bill 2018 as a political attempt to save the youth of Goa, give them self-confidence and respect. I proposed in the Bill that was submitted to the Goa Legislature, that in the short term, each unemployed youth can be given a dole amounting to Rs 10,000 a month for a minimum period of four years, stipulating certain terms and conditions. Had the government, irrespective of political considerations, supported this Bill, it would have given the youth hope, the families sustenance and a security for the future.

Simultaneously, I was aware that mobilising such a huge amount of money to pay out as a dole would seriously challenge the government's finances which at no time have been at the best. But I was also aware that Goa had the resources to mobilise the finances for the dole. While costs of supporting the youth would be high, the consequences of not reaching out to them would be even higher. I had seen the youth lose hope and migrate. They did not run away from Goa because they did not have a love for it, but they saw no other alternative and had no hope.

Some have even taken the extreme steps of surrendering their Indian citizenship. In July 2024, it was revealed that over a period of 10 years, there

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were 25,939 Indian passports surrendered in Goa. The question we should ask ourselves is what makes these youth of Goa migrate, even giving up the citizenship of their country? Would they have stayed back if there had been employment opportunities of their desire? I would think they would and therefore I believe that unemployment has to be tackled on a war footing.

A Roadmap For The Future

■ Tailor-made Goa specific policy

We can't keep the youth unemployed. Besides, it is a major indicator of a State's economic condition and a high rate shows just how badly a State is doing. Yet, unemployment is not restricted to Goa or India with its large population, it is prevalent across the world, in the most developed countries as well as the least developed. As per the International Labour Organisation (ILO), even in good economic times, young people experience unemployment rates that are three to four times higher than adults and they estimate that across the world, one-fifth of young people are not in employment, education or training.

The State, therefore, requires a plan that will create gainful employment and not merely give jobs or doles to the people. In a State where a large section aspires for a government job, channelling the youth to the private sector and keeping them there should be the priority of the government. The political establishment, the current chief minister in particular, has been clear time and again that is not the job of the government to employ the jobless, but of course it is the job of the political class that is elected to create the environment that will attract investment in Goa which in turn will create the jobs. That, however, is not an easy task in this State as industry in Goa has somehow managed to create jobs that have gone to those persons resident out of the State, who have then relocated to Goa.

A fresh employment policy should be designed so that it delivers where it matters most. It has to be practical and implementable, not just a theoretic

exercise that will remain on paper and utilized to portray government concern. It has to, therefore, identify the goals and develop strategies to meet them. Here we look at not just creating jobs or supporting private enterprise in job creation, but also improving the quality of jobs. The policy and any other initiatives must take into consideration new investments in strategic sectors and economic areas with growing social demand.

■ Industry-education link

For this, any policy on employment has to consider the workforce that is available in Goa. This in reality does not entail any complex working as the workforce abilities are dictated by the qualifications achieved by the youth and this is easily quantifiable by the educational courses that are available in the State. We know how many youth graduate every year and in which streams. So, shouldn't the industrial policy for Goa be directly related to the educational policy and system prevalent in the State? Shouldn't the employment policy prepare students for the jobs that are available in the State? The purpose of asking these questions here, rather than affirming them as statements, is to make the reader realise how, in Goa, we are not taking the right steps in tackling unemployment.

To illustrate this further, Goa's employment opportunities are demand oriented, yet the supply has never been created. Take for instance the mining sector that was the largest provider of employment in the state for much of the post-Liberation period. Technical jobs in the industry and higher managerial positions were garnered not by Goans but by those from outside Goa. This is simply because Goa did not have the courses that prepared its youth for these jobs. Similarly, when tourism began to grow in the State, Goa was not prepared with providing the industry with employable youth beyond a certain class. Today there are institutes that train youth in hotel management, but Goa still doesn't have a tourism management course that is a dire need.

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The first aspect to be considered when the question of employment comes up is to consider the industry that exists in the State. Goa's experience with heavy industry has not been the best, and the future of such employment-oriented non-polluting industry in the State is at best uncertain, mainly as such industry require large tracts of land and the State does not have any excess land that can be converted for industrial purpose. Besides, existing industry in Goa has attracted migrant labour and though there is no data to zero in on the percentage of migrant workers employed in industry, it is safe to say that it is well above 50 percent, and that would be a conservative estimate. The reason for this is simple. It is not that there are no local youth who need employment, but it is simply that Goans do not aspire to work in factories. They would rather sit at a desk in an office than stand that same amount of time in front of an assembly line. Factory work has now changed, but perceptions in the people do remain.

■ Focus on Service Industry

That being the case, what segment of the population is the industry appealing to when it comes to unemployment. The cases, recent and past, of recruitment advertisements for jobs in factories at Verna Industrial Estate appearing in the media outside Goa, makes it clear that the industry heads are aware that if they want to staff their factories, they have to tap human resources from outside the State. The takeaway from this has to be to look at employment generation not in the industrial sector, but in the service industry. The focus, when inviting new industry should, from now on forward, be the service industry and not the manufacturing sector. Policy makers have to look at the future with a clear understanding of what is required and not by what industry comes knocking on the doors of the State.

It is pretty simple, Goa cannot invite industries that are land and labour intensive as the State cannot provide either of these. The labour for these will come from outside that in turn will increase the migrant population, not just

at the executive levels but across all levels of employment. A pertinent question here is whether the Goan identity could survive such a demographic change? Simultaneously, does Goa have the labour force within its boundaries to equip the industry that will be set up? Any kind of industry for that matter?

An internal document of one of the trade bodies in the State had listed out what the Goan workforce lacks, and this list is a revelation of sorts. It enumerated the lack of employability skills, inadequate skilling, lack of quality vocational training, no focus on sector specific skills at workmen level, no real world employable skills and no technology assisted learning. Against this scenario, it is hardly surprising that industry prefers a non-Goan workforce. Whose fault is it that Goans lack in all these? It is nothing other than the failure of the education system that is not producing employable youth in the State, or employable in the existing industry. The thrust has to now change to preparing the youth to meet the demands of industry and employability.

■ Digital Technology and Artificial Intelligence

The world today is hurtling towards digital technology, that is playing a primary role in businesses and therefore workplaces. A big worry is that in Goa, our youth is not being provided with the required digital skills. Digital transformation is taking place rapidly and jobs across sectors and employment levels are getting automated. There are new roles being created and many of the existing ones are being modified, requiring new skills. There is opportunity there but there are also challenges. There is urgent need of skilled hardware engineers on site as well as software engineers who can work remotely. Is Goa providing any of these? Will it be able to provide these in the coming years, with whatever added skills will be required? These are questions that trouble the mind, while being aware that a decade from now the skills required could be very different from those that are in demand today.

Prof Raghunath Mashelkar, in an interview with the Herald in 2021, on the occasion of the 60th anniversary of Goa's Liberation had spoken of how the changing world was compelling policy changes at a fast pace. Providing an example, he had said that the document 'Goa 2035' produced by the Goa Golden Jubilee Development Council of which he was Chairman, had identified the service industry as an opportunity for Goa, suggesting that the State should be a 'leader in providing high quality financial and business services such as in accountancy, law, advertising, public relations, management consultancy, in the field of design including architecture, fashion and interior design'. In the interview he went on to state that while that conclusion still held, each of these areas was getting disrupted, especially because with the 'exponential growth in computing power, there is a superlative increase in Artificial Intelligence (AI) and it has its impact on jobs'. As an example he had pointed out that in financial services, investment advice algorithms are displacing investment advisors, that algorithms can now analyse financial data and prepare accounts (as well as do tax returns) without the need for accountants. The point he was making, and which is of crucial importance, is that the jobs that exist today are endangered, and there will emerge new avenues. The new worry is that Goa is not prepared for these changes in the employment market, and that even if there is a government policy that mandates a quota for Goan employment, industry will find it difficult to employ the Goan youth.

What Prof Mashelkar said in 2021 is not a futuristic vision. All of us today depend enormously on digital tools for even the mundane tasks and social media is taking over the role of not just disseminating information, but even advising and earning via data transactions. To provide a very common example, every time you watch a reel on your phone the individual who produced it is earning. Could we imagine this even a few years ago? Consider the role that influencers in various spheres are playing. Goa Tourism has recently empanelled influencers to promote the destination. But, is the Goa government preparing its own youth

to venture into such opportunities? I use the term opportunities for I wouldn't be able to call it employment, but the individual is earning from it, so there is an income.

Employment depends on industry and if industry is keeping pace with changes in technology, then Goa too has to move at that same speed and visualize the future for a better tomorrow. We have to realise that the COVID-19 pandemic accelerated the changes in digitalization, leading to almost restructuring the nature of work as well as that of the workplace. If we want to learn from the rest of the world, then ILO finds that digital SMEs, small entrepreneurs and independent workers are the primary creators of employment today.

Governments too shifted accordingly and digital platforms were created at a rapid pace and countries have climbed on the digitalization train. Our government at the Centre is also pushing digitalization, not just in payments and e-commerce that can reduce transaction costs, but across sectors. Since all of us spend money we have experienced the change there, but may not realise that the digital focus is in other areas also. And that is where Goa is not prepared. The State needs to put in far more effort to ensure that its unstated employment policies are in sync with the rest of the country and the world.

Conclusion

Unemployment cannot and should not be converted into a political issue. It is a serious one that affects the State and its youth. No State should ever let down its youth or let them see hopelessness in the future. The youth are our future and if the leaders of today cannot provide for them a future where they see themselves contributing, a sense of hopelessness will descend upon them. Goa cannot allow that, cannot afford that. Unemployment has to be tackled at superfast speed, not lethargically as it is being done today.

We cannot sleep on it, we have to wake up and take a close look at the emerging

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industries and how best our youth are prepared for them. The future is in digital technology and artificial intelligence, both of these will play a massive role in the coming years. Unless we prepare our youth in these, provide them the necessary skills required to work in these industries, we will miss the bus. Yet, for us in Goa, we also cannot ignore the service industry.

We have depended on mining and tourism for long, but we now must diversify. There will be challenges in diversifying but the potential for growth in sectors like IT, digital services will not only provide new employment avenues, but boost the economy. Goa is a prosperous State, it has to tackle its unemployment issue to emerge as the most prosperous State in India.



“The advance of technology is based on making it fit in so that you don’t really even notice it, so it’s part of everyday life.”

– BILL GATES

GEARED UP FOR TOMORROW’S TECHNOLOGY

Goa had acknowledged the potential for IT long before other States, but didn’t grasp the opportunity

Across India, the word Goa immediately conjures up images of beaches and tourism, hardly anyone relates Goa to mining and even fewer to other industries. Similarly, there was a time when the word Bangalore meant garden city, its salubrious climate adding to the monicker. Today Bengaluru denotes the IT hub of India. Could Goa have also changed this perception from being a tourism destination to being an Information Technology hub? Or perhaps it could even have been both. Imagining this is not difficult, primarily because Goa had the bandwidth to leap onto the IT bandwagon, but at some particular point the network was interrupted. We have today in Goa, a reasonable IT presence. Large IT firms in Goa are few; of the medium and small there are a sizeable number, but even these are nowhere close to what it could have been.

Information Technology has revolutionised lives, demolishing territorial boundaries and integrating the world in manner never before considered possible. It has redefined the structure of economic systems by making it possible to track production processes separated globally without the physical presence of managers. Electronic data interchange and electronic commerce have replaced paper transactions and capital is moving across the globe in seconds.

The Government of India, on July 25, 1998, had announced a series of measures to transform India into a Software Super Power. In Goa we saw the potential for this as the State had an ideal advantage to attract software and hardware companies and even promote local IT companies. With a good infrastructure for promoting IT, we took steps towards giving Goa that initial momentum, but somehow the changes in government not only disrupted the

path forward but perhaps derailed it entirely. Goa had, therefore, taken a head start in Information Technology but the subsequent mentorship of the sector failed and other States were able to stride forward and Goa lagged far behind. In January 1999 we formulated the Information Policy and in September of the same year the Draft Feasibility Report on the Hi-Tech Habitat was prepared by the National Association of Software and Service Companies (NASSCOM), New Delhi.

As it is 25 years since then, and the sector has progressed fast, I will not go in detail over the policy and the Hi-Tech Habitat, but just skim through it so that readers have an idea of what we had envisaged for Goa, and what, had there been continuity in governance—no matter which government—Goa could have by now been the top State for IT in the country. I say this because at that time, in 1999 when IT was rather nascent in Goa, the Government had committed to transform Goa into a leading Information Technology State and to make the Margao-Verna-Vasco-Panaji-Mapusa corridor, one of the leading centres for software development in the world. This was coupled with the commitment to use Information Technology in governance, education and in infrastructure development in the State. It was with this commitment in mind—to make Goa a leading Information Technology State—that the state we brought out the Information Technology Policy.

For this, what was required was a sound industrial and skill base, a modern economic infrastructure and a competent system of governance. In turn, each of these were increasingly dependent on IT and so had to develop in tandem.

I was the Industries Minister at that time and fervently believed that this was the sector that would dominate in the years and decades to come. Today, IT encompasses all aspects of life and we can't imagine our quotidian without the digital devices that we carry today. Goa had the first IT Department and the

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first independent IT ministry in the country. The results of this could have been cascading, but they haven't. A look at the global scenario at that time, clearly portrayed competitive markets beyond time zones, national boundaries and even distances. It was a nascent industry but was sauntering up to prominence with continuous innovations, improvements, increasingly favourable cost benefit ratios and most importantly, empowerment of users. Constant change was, therefore, the hallmarks of the Information Technology industry.

The individual who helped me with the forming the first IT Department and the first independent IT Ministry in any state of India was the Late Devang Mehta, also known as the 'IT Man of India', who at that time was also the President of NASSCOM. A personal friend, Mehta put together suggestions on need-based objectives and we had the department functioning. What is most noteworthy, is that he did all this at no cost to the exchequer. On the other hand, the two of us shared many happy moments while planning the IT growth of the State.

India's Information Technology industry was already gaining fame at this time as a software-driven industry. The industry was sending a clear message of growth, diversification and commitment to the growing global mainstream IT industry. India was naturally endowed with technically skilled manpower, a natural resource that makes India a software superpower. This was and is one of the principle advantages that go in favour of India being a hotbed for quality, cost-effective, time-bound, state-of-the-art technologies. Above all, one very dependable component is reliability.

Factors driving IT

There were three factors that were driving the growth of IT-enabled services in the late 1990s and early 2000s. These were outlocation, a term used to obtain services outside the national borders of a company, outsourcing that we are most familiar with which means obtaining services from another organization and the

third was the growth of the web that allowed providing these services. Based on these three, in Goa we looked at companies that would be subsidiaries of parent companies, Joint Ventures through Foreign Direct Investment and Contracting Companies. The IT-enabled services we were looking at were call centres, medical transcription, back-office operations, insurance claims processing, legal databases, content development, payroll and logistics management. If one looks at the growth of Bengaluru in IT, than it started from these and there were many Goans who relocated to Bangalore for employment in this sector, and still do.

Whether today or 25 years ago, Goa was very well suited as an IT destination. A small State, with a population rather evenly spread, travel time within the State is relatively short compared to major cities. A person living in Margao or Panjim would not have waste too much time in travelling to an IT Habitat in Dona Paula or Bambolim, or to a unit in Verna. Besides, Goa had, and still has, some top engineering colleges, today of course it has the NIT and IIT too, but at that time Goa Engineering College, BITS Pilani's Goa campus, Padre Conceicao College of Engineering were already established in the State. Goa was producing graduates who could be employed in the IT sector. Added to this is the fact that Goans, given an employment opportunity, would definitely prefer to stay in their own State rather than relocate elsewhere, especially considering the family life they would have here and the cleanliness of the place. The companies seeking to set up in Goa would also benefit, as the costs of setting up units in the State were relatively more economical than in other States. Besides, we were making it easy for them to obtain permissions as will be seen later in this chapter.

The IT sector in the State could really have taken leaps and bounds had successive governments been less lethargic and more active. The State failed to provide the infrastructure required, mainly high speed and reliable internet connections. But we can still do this for the IT sector is growing rapidly and will not see a sunset anytime soon. Right now it comes down to ensuring the

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right infrastructure is available and that interested entrepreneurs are not unduly bothered during the permission stage.

New IT Policy 2018

Goa formulated a new IT Policy in 2018 that set several ambitious aims that included, the creation of 10,000 high-quality jobs in the sector that would lure Goans working elsewhere to return and reduce the 'brain drain'. The policy also sought to make Goa a most preferred startup destinations in India and feature in Asia's top 25 startup destinations by 2025. Of course, neither of this happened, for the very simple reason that the promotion of Goa as an ideal investment destination for IT industries and IT-enabled Services (ITES) industries did not reach out to potential investors, so the objective of encouraging IT companies to set up in Goa failed. Some of the other objectives of the policy were to enhance digital literacy and cultivate IT in schools and colleges, and implement e-governance initiatives. The point here is that, how different were the objectives of the 2018 policy from that of the 1999 policy? Both, the original IT policy of 1999 and the revised policy of 2018, that came two decades later, had broadly the same aims.

Further, even the initiatives in the IT sector were similar, and these included a StartUp Promotion Cell as well as Infrastructure and IT Parks. The IT Park is interesting, as we had envisaged the Rajiv Gandhi IT Habitat in 1999 at Bambolim over an area measuring 70 acres, and a detailed project report had been prepared. NASSCOM had identified the land, based on certain criteria that included that it be cost effective, accessible without much traffic congestion and relatively pollution free, preferably close to Panjim and near a University or colleges. The site selected was of course Bambolim, and land had been allotted for this. Here's a closer look at the IT Policy of 1999 and the IT habitat.

AIMS OF IT POLICY 1999

The IT Policy of 1999 had certain clear aims. It was not a haphazard document

but one that chartered a course for the industry, when it was still at an early stage. Some of the aims were:

- Use IT to improve productivity in government and to provide efficient service to the citizens of Goa.
- Make Goa a leading state in export of IT (software) in India.
- Improve tax collections and speed up the process of tax assessments by use of IT.
- Increase export earnings from export of software, computers, computer peripherals, telecom and IT Enabling services by encouraging industries through fiscal regulatory benefit.
- Improve employment opportunities and employment in the IT area.
- Reduce cost of IT so that the cost of doing business in Goa is reduced and the citizens of Goa are able to use IT in a cost effective manner.

SUPPORT STRATEGIES TO ENCOURAGE IT IN GOA

- Encourage software development and other IT Enabling Services that would earn net foreign exchange through software exports and increasing quality employment in the State.
- Support local producers and service providers by creating demand for indigenous IT products and services.
- Promote widespread use of IT in government, industry and among citizens.
- Function effectively in an increasingly IT dominated environment.
- Take advantage of the intrinsic benefits of IT in coping with the information of government departments.
- Spread education and literacy through IT.
- Generate employment through deployment of IT.

IT STRATEGY

- Build and provide necessary state-of-the-art infrastructure for software driven IT industry.

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- Adopt an integrated approach that takes account of incentives, institutions and capabilities.
- Build access to international networks and foreign conduits for IT.

ELEMENTS OF GOA'S IT POLICY

- Develop and encourage new technical skills, managerial practices and organisational learning capabilities essential to effective IT use and diffusion.
- Focus on IT and education and use of IT in government.
- Encourage the use of IT in schools, colleges and educational institutions, so as to enable students to improve their skills, knowledge and job prospects and enable them to obtain employment in this sunrise industry.
- To reduce the cost of governance by better utilization of assets.
- To encourage industries to expand business in the state of Goa and thus generate employment.
- Develop the capabilities of government as a catalyst and strategic manager of an economy-wide process of collaborative action and learning.
- Create state-of-the-art infrastructure for IT generation including telecom network for Internet proliferation.

DEFINING IT FOR INDUSTRY

At that time, the Information Technology industry was understood to be synonymous with what was included in the Infotech Pact signed by the Government of India with the World Trade Organisation. There were a number of items relating to computers, telecommunication and the electronic sectors, essential for the growth of IT that were included in the definition of the IT Industry.

It therefore would include, but not be restricted to computing devices including desk tops, personal computers, servers, workstations, nodes, terminals, network PC, home PC, laptops, note books, palm tops. Besides these there were

the network controller cards, processing units (CPU), storage devices or hard disk, ROM drives, key board, monitor, multimedia kits, printers and output devices, networking products, software, power supplies to computer systems, networking and related accessories, consumables including CD ROM and the such, electronic components including printed circuit board assembly, printed circuit board, telecommunication equipment, modems, telephones etc. This is not an exhaustive list, but just indicates the spectrum of products and services that come under the IT head and how this could have transformed Goa had the policy been seriously considered.

GOA INFORMATION TECHNOLOGY COUNCIL

To facilitate all this, the government was to set up the Goa Information Technology Council that would have on board eminent people from the industry in Goa and India, as well as senior officials, to guide the government in the formation and management of the IT Policy. The government would also set up the Department of Information Technology (DoIT) to promote a Software Technology Park Authority Goa (STPAG), as a single window agency for approvals to units setting up business in Goa in the IT field. The STPAG would grant all approvals under the State laws and its approval would be binding on all State departments. It would also improve the infrastructure in the State to ensure development of the IT Industry.

Besides this, an institution to promote computerization in government would be set up. All departments were to set aside 10 percent of their budgets for computerization. The institution would expedite computerisation in government in file monitoring of departments and the secretariat, and tax collection system to improve fiscal accountability. It would introduce IT for better interface between government and people.

The government would assist the STPI and VSNL, the telecommunication

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entity of the Government of India, and DoT would expand communication links in the State. These agencies would be encouraged to set up gateways and earth stations and the Government would provide land and other such facilities that would be required.

FISCAL INCENTIVES

The government was to grant a set of fiscal and other incentives to the IT, the main being that it would not charge sales tax on all IT products.

For software units

- Export oriented software units would get a registration from the Software Technology Park Authority, Goa as Software Technology Parks and the registration would be authorisation to avail fiscal incentives.
- STPs would be exempted from the payment of sales tax on purchases in Goa of raw materials, components, packaging materials, consumables, spares and other items consumed or used by it for the purpose of exports.
- STPs were exempt from the payment of sales tax on purchases in Goa for all capital goods used for their business.
- STPs would be exempt from payment of entry tax on capital goods, raw material, computer parts, components, consumables, packing materials, spares.
- STPs would be allowed to set up offices in residential areas.
- STPs would be allowed to maintain records under relevant labour laws in the electronic form with the labour authorities.
- Sale of computer software, programming and providing of computer software would be exempt from payment of sales tax, entry tax and TOT and all other like taxes in Goa. The sale of computer software and programming and providing of computer software would also be exempt from inter-state tax.
- STPs would be exempt from payment of special duty payable on registration of the lease agreements, sale deeds. The registration charges would be nominal.
- Execution of lease agreements, sale agreements would be simplified and the

powers substantially delegated to the lower level officials.

The proposed Software Technology Park Authority Goa (STPAG) would be authorised to grant permissions with delegated powers. In respect of conversion, the power would be restricted to the permission as per the Outline Development Plan and the case would be referred to the Town and Country Planning Board for ex-post facto approval. Any permissions required outside the ODP would require prior clearance of the TCP Board.

For hardware industries

- Industries registered with Department of Information Technology (DoIT) for the purpose of manufacture and sale of computers and computer peripherals (CCP units) in Goa would be entitled to certain benefits.
- CCP units would be exempt from payment of sales tax on any purchase made by them within Goa of capital goods, raw materials, components, packing materials, spares, material handling equipment, intermediaries, semi-finished goods, sub-assemblies and consumables used in the manufacturing of the computers and computer peripherals. Such units would be exempt from the payment of sales tax and entry tax on diesel and furnace oil for captive power generation.
- CCP units would not be liable to pay central sales tax on inter-state sales.
- CCP units would be given power connection on priority basis. The rules and regulations governing the installation of DG sets by the CCP units would be simplified.
- CCP units would be allowed to maintain records under relevant labour laws in electronic form and file the same with the Labour Authorities. Paper work would be reduced drastically. The frequency of filing the returns would be reduced.
- The government intended to exempt CCP units from the payment of special duty payable on registration of the lease agreements, sale deeds. The registration

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charges would be nominal.

ADVANTAGE GOA IN SOFTWARE AND IT ENABLING SERVICES

Goa had and still has all the pre-requisites to emerge as a software paradise. Some of the advantages are listed below.

COST EFFECTIVE: Goa offers an immense cost advantage in software development, primarily due to its relatively good standard of living and at the same time being cost effective. As per survey findings at that time, the cost of setting up a software unit at Goa was least amongst the other 10 Indian software cities compared.

ENGLISH-SPEAKING MANPOWER: Goa has one of the highest literacy rates in the country and a very large percentage of the population is conversant in English and other languages, thus making it a frontrunner in setting up call centres and other IT enabling service operations. Goa, at that time had the capacity of providing an annual output of about 500 graduates, who with IT training could be recruited in the IT industries. An independent survey had determined that the number of software professionals from Goa working in the Indian software industry was more than two percent. This number could be dramatically increased with changes in policy and increasing the number of institutions and seats.

NRI (GOANS): Many native Goans employed in the software industry worldwide had expressed their desire to come back to their motherland. At the same time, there were many Goan software professionals working in other parts of India, who desired to come back and work in Goa.

DATA COMMUNICATIONS: A Software Technology Park had already been set up in Goa which would have state-of-the-art data communication facilities.

There were also plans to provide more state-of-the-art datacom facilities at Goa. The already laid fibre optic lines were an extra advantage to make a super corridor in Goa.

USE OF IT IN SCHOOLS

It was decided that students would begin their IT education in schools, but this would not be possible without teachers, so there were twin goals that included the provision of equipment and training teachers to use IT in learning. We know that appropriately used, technology can reduce costs, increase access, boost learning retention rates and reduce boredom and misbehaviour. In short, implementation of IT in education could have resulted in continuous 100 percent literacy in the state; more curiosity, creativity and teamwork; changed roles for teachers; the re-emergence of customised teaching and training as given to apprentices or given by tutors; reduced behavioural problems, improved concentration and self-image and access to more information.

Of course this would require some organisational changes in the school system and these are listed here:

- Ensure that teachers teach well and are not merely agents for social policies to the detriment of the primary goal.
- All teachers are trained in using IT to raise the quality of teaching both for content and in helping students acquire knowledge.
- They should be groomed to act as agents for facilitating integration of telecom and computers in the classrooms thus paving way for 'virtual classrooms'.
- Introduce concept of SMART Schools which help in overall skill development of the students.
- Initiate a Teach the Teachers Programme for upgrading the IT knowledge and skills of teachers on a regular basis.

None of this would be possibly without quality IT training and for this, well

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established and standard accrediting norms were to be set up. The accreditation would ensure that state-of-the-art IT facilities are available and the State was to establish an autonomous body to look after this process. A Virtual Institute or Training to promote computer education was to be established as an autonomous body under the aegis of Goa University. The vision was to ensure that state-of-the-art and quality IT training and education, comparable to best of the world, was available in Goa.

Further, given that IT training and education is generally expensive as compared to some other courses, it was decided to introduce finance schemes to help students gain quality IT education and training. Banks were to be persuaded to provide loans to students which would be repayable by the students from their employment benefits. It had even been suggested that a consortium of banks be set up at the State level or alternately, a corpus be set up by the State government which can raise resources from banks and financial institutions and then run it as a self-generating fund.

USE OF IT IN GOVERNMENT AS PER POLICY

Most of the following have been implemented today, but at that time were innovative:

- Endeavour to use IT in the process of governance and improve its response to its citizens.
- Endeavour to have connectivity between all government offices so that communication can flow through e-mail to enhance productivity.
- Endeavour to computerise the process of governance, so that citizens could file documents required by the government, electronically.
- All departments and district headquarters to have video conferencing facilities and e-mail facilities with the Chief Minister's Office to allow a channel of communication.
- Endeavour to put in place a training program to enable government employees

to use IT to enhance productivity.

- Tax departments would be fully computerised within five years, with their various offices interconnected to allow flow of information.
- The staff of the Tax Departments would be trained in the use of IT to increase tax collections, reduce delays and improve productivity.
- All assesses would be allowed the facility of filing their returns electronically and paying their tax through electronic transfer of funds.
- Special budget allocation every year to complete its computerisation program.
- Strive to set up Data Processing Centres in various cities/towns of Goa to proliferate employment.
- Provide state-of-the-art infrastructure at the proposed Margao-Verna-Vasco-Panaji- Mapusa corridor.

IT IN HEALTH AND TOURISM

There were plans to take IT to the Health and Tourism sectors too. It was felt that the greatest community benefit would come from improved community and public health programs. Because of increasing mobility there was need to think of public health on a wider basis and take medical consultations over a network lowering the costs in smaller clinics and hospitals.

A state level health network was to be developed connecting people engaged in public health leading to tele-monitoring of diseases to achieve higher standards of public health. Training of 'cyberdocs' (people trained in both public health and networking) was envisaged and top priority would be given to preventive medicine through good public health programs. As seen since then, intelligently used, IT can greatly improve health care and its benefits have been demonstrated. Further development of IT based training and testing of athletes in the pursuit of sporting excellence was to be given impetus.

Since Goa was an international tourism destination, there were plans to enhance

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tourism through IT, via virtual reality presentations that would allow tourists to ‘participate’ more regularly, irrespective of terrain and weather conditions and interactive networked reservation systems. It was envisaged that overseas developments would be major sources of inspiration for Goa’s leisure industry, where the boundary between work and leisure would tend to blur. Leisure interests would often develop into or generate work possibilities and vice versa. Today, Goa is promoting itself as a ‘workation’ destination, where you can work remotely. We had already seen this possibility at the time of drafting the IT policy.

HI-TECH HABITAT

I now come to the other important initiative of the government, which was the Hi-Tech Habitat, a project that would have revolutionized IT in the State.

The recommendations of the then formed ‘National Task Force’ were that hi-tech industries normally flourish in the hinterland adjacent to cities with infrastructure conducive to telecom and communication. Arising from this, was the potential of promoting Hi-Tech Habitats in the country and Goa was selected as one of the states to have an IT habitat.

Goa, despite not being big in industry at that time, possessed the potential to attract the software giants. Its advantages are listed below:

- Availability of skilled manpower and also educational facilities to meet the need of the industry.
- A dominant population of Goa was English speaking.
- Inherent cost and quality advantage.
- A well-frequented tourist destination, Goa has inculcated international lifestyles and business practices. Goa had already been scoring very high on the lifestyle index.
- National air links, road and rail connectivity.
- Availability of high speed datacom links and internet

- Strong support from an enthusiastic state government to promote hi-tech industries in the state.
- Proximity to Mumbai, the commercial capital of India.
- Availability of housing and educational facilities for dependents.
- Availability of world class hotels at affordable costs.
- Availability of international quality financial services.

This was the status in the late 1990s, imagine how much improvement Goa has seen since then, and how better suited it is as an IT hub.

MAJOR OBJECTIVES OF THE HI-TECH HABITAT

- To create a modern state-of-the-art infrastructure complete with buildings and campus, complete with high speed datacom and networking connectivity.
- To be attractive and provide ease of operations to employees and employers.
- Avenues for substantial additional employment would be opened.
- State-of-the-art construction infrastructure and international quality environment.
- Plots of land as well as some built-up spaces.
- Built-up space would provide two broad categories. One would be the 'Incubator' or 'Plug-n-Play' and the other the 'Deluxe' model.
- Facilities like recreation clubs, health clubs, mini convention centres, etc would be available.
- Support services like banks, ATMs, post office, shopping arcades, would be provided. Adequate transport facilities would be provided.
- Uninterrupted 24 hours power supply would be provided.
- Water connectivity would also be instantly provided.
- Security system would be provided to ensure law and order.

TARGET COMPANIES FOR THE HI-TECH HABITAT

There was a comprehensive study done to ascertain activities that could be

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conducive to Goa. The following industries were found to be more attractive for investors in Goa:

- Software Development Centres
- IT Enabled Services
- Regional Software Marketing Offices
- R&D Centres
- Telecom Software
- ISPs and local content development
- E-commerce enabling companies

In addition other companies that could find interest in Goa were categorized as:

- Networking Companies
- Internet Companies
- Telecom Services
- Hardware R&D Centres
- Hardware Manufacturing

NASSCOM strategy for niche positioning of Goa's Hi-Tech Hub

- Adequate marketing of the Hi-Tech Hub which was then proposed to be a Bambolim
- Acceptance of NASSCOM proposal to set-up an IIT-M in Goa
- Creating a Department of Information Technology, which was eventually done and Goa became the first state in the country to start such a department
- Creation of website and other promotional material to position Goa for software development, IT enabled services and marketings
- Publicising Goa's IT Policy
- Participating in major IT Trade Fairs in India and overseas
- Trade Delegation led by the Chief Minister and/or Industries Minister to visit various silicon capitals to attract investment.

- A national level seminar organized by NASSCOM and the State Government at Goa to attract captains of industries.

The report also looked at the land requirement and how it could be fruitfully utilized. A detailed study kept in mind the need for low-cost land and the other details involved.

It was also felt that Goa could emerge as an important destination for web enabled services. Three factors that would drive growth of this concept were identified as:

- Outlocation or obtaining services from outside the national borders of a company
- Outsourcing or obtaining services from another organization (third party)
- World Wide Web whose growth had triggered the growth of IT-enabled industries.

The three major organization configurations were:

- Own subsidiary to be set up by a company
- A joint venture of a company through FDI
- Contract Out to another company at a remote place

The IT-enabled services have the potential to grow in already established opportunities, rapidly evolving opportunities and latent opportunities.

The report also looked into details and analysis of complete feasibility taking into account a marketing plan and also a draft invitation document to probable investors along with a pre-qualification document.

The Hi-Tech Habitat would provide modern, state-of-the-art infrastructure, including highspeed datacom and networking connectivity and be run as a

commercial operation, though the built-up space and plots would be sold in line and price comparable to such projects in other cities.

FEASIBILITY OF HI-TECH HABITAT

The plan was to transfer 70 acres of land at the selected site at Bambolim, to the State government owned PSU—Electronics Corporation of Goa Limited (ECGL)—and invest in further equity of Rs 3 lakh in ECGL, which was declared as the nodal agency for HiTech Habitat development. Of the 70 acres of land, ECGL would transfer 45 acres to the proposed JV company at an agreed price and the remaining 25 acres, would be directly sold to interested IT companies at a special price. It was proposed that the JV company would cover an area of 50 percent and use FAR of 1, though it was proposed that later the JV company be allowed FAR of 1.5. It was thus envisaged that the built-up space would be approximately 80,000 square metres. It was also proposed to have common facilities like gymnasium, F&B outlets in the habitat to benefit all and at that time the cost of an Earth Station and networking facilities had been set at Rs 6 crore.

The cost of the Hi-Tech Habitat building project to the JV company was estimated at Rs 122.30 crore and the revenue from the sale of built-up space was estimated at Rs 145 crore, giving a surplus of Rs 24.90 crore. This was subject to the assumption that the land transfer price would be Rs 6.3 crore. To this the annual revenue from rent/lease, F&B and maintenance was pegged at Rs 14.25 crore. It was, therefore found that the proposed JV company would be feasible.

Conclusion

Today, decades later, it is clear that Goa could have benefitted immensely from the IT sector had the policy been implemented in letter and spirit and the Hi-Tech Habitat been set up in similar manner. Since then the IT Policy has been amended and new IT policies have been formulated but Goa has definitely missed that bus. It can, however, still latch on to the IT sector as this

is growing industry and the potential is immense. All that is required is for the government to remain unwavering in its stand once it decides to support IT. Potential investors do not take kindly to changing policies and shifting goalposts. Once a commitment has been made it has to be honoured, for private investors plan with the future in mind and wouldn't like to see their investment being jeopardised due to vacillating government policies.

Had the Hi-Tech Habitat taken off and borne fruit, it would have been Goa's flagship IT habitat centre and I'm certain that there would have been more that would have arisen based on the success of this experiment. It is unfortunate that Goa has allowed opportunity in various sectors, IT primarily, to slip out of its hands. The gains from IT would have been not just in economic factors, but also in retaining our youth in the State. A large number of them migrate to other Indian cities for employment and even abroad, the IT sector would have given them the opportunities they sought here in Goa with the salaries that were comparable in any other part of the country. Sadly, in not taking forward the IT policy and the Hi-Tech Habitat, it is Goa that has been the loser.



“I think the biggest innovations of the 21st century will be at the intersection of biology and technology. A new era is beginning.”

– STEVE JOBS

AIMING TO PLACE GOA IN THE WORLD’S BIOTECHNOLOGY MAP

An effort at creating a policy
that could have given Goa an entirely
different path forward

Goa has a well-developed infrastructure coupled with excellent human resource development and economic indicators. The major sectors of economic activity in industry, pharmaceuticals, agriculture, forestry, fisheries, food processing offer immense scope for expansion and growth through more biotechnology interventions. Hence, the question I asked myself decades ago was: shouldn't we use this emerging technology?

At the turn of the century, we had a vision for the future of Goa, believing that Goa deserved better and only the best. That vision led to many initiatives and policies, one of them being the formulation of a Biotechnology Policy that aimed to make Goa a Biotechnology Hub, that besides inviting industry to set up in Goa and create employment, could also ensure sustainable utilization of the vast and varied biodiversity in the State. This chapter relies much on that policy, so as to make readers aware of how much thought was put into planning for Goa's future. It is unfortunate that after the policy was formulated, biotechnology did not receive the impetus it deserved, mainly due to political changes in the state. Had that policy been implemented with vigour, the industrial and employment sector could well be a very different today in Goa.

In very simple terms, biotechnology harnesses cellular and bio-molecular processes to develop technologies and products that help improve lives and the health of the planet. At the beginning of the millennium, biotechnology was viewed as having the potential of being an engine of economic growth globally. It had contributed in the fields of agriculture, human and animal healthcare, environment management and the processing industry. It was, and correctly,

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widely acclaimed as the technology of the 21st century, the impact of which was expected to be far greater than that of the trailblazing achievements of information technology in the last few decades. The turnover of the Indian biotechnology industry had crossed US \$1 billion in 2005 and it was expected to reach US \$ 5 billion by 2010. Such a phenomenal growth in biotechnology in the country would result in substantial generation of employment covering a wide spectrum of knowledge level and skills and providing excellent entrepreneurial opportunities, and we believed that Goa should not be left out of this.

Recognizing the potential of this sunrise sector, the Goa Government under my leadership was keen to facilitate the accelerated development of biotechnology in the State utilizing the natural, scientific, human and other resources available in the State and the region by providing policy support, keeping in view the unique requirements of the sector. Throughout my time in active politics, and even today, I was aware and remain so, that Goa could not and cannot be a State for heavy industry, primarily because of limited land availability. Yet, that State has an educated workforce and the government was required to provide jobs to the youth. Biotechnology was one sector that would meet both these purposes and therefore, it was given a significant place in our industrial policy.

At that time, the State already had a well-developed industrial infrastructure. The banking industry was quite active, while the major sectors of economic activity—agriculture, forestry, fisheries, food processing and drugs and pharmaceuticals—offered immense scope for expansion and growth through biotechnology interventions, that would enhance production and provide value addition.

The State had education and research related to biotechnology and had evolved an Industrial Policy in 2003, and later an IT policy to provide the framework for accelerated development of these highly knowledge-based industries. The

formulation of a well-thought out Biotechnology Policy was expected to make the State an attractive destination for investment in biotechnology building upon the strengths it already had.

The Goa Biotechnology Policy was hence formulated to ensure accelerated growth in all areas of this, then sunrise sector, as education, research and economic sectors covering healthcare, agriculture, industry, services, environment management and employment generation so as to bring the State to a position of pre-eminence which it has been occupying in other sectors of social and economic growth. The policy document identified the factors required to ensure such growth and enumerated the steps to be taken by the stakeholders, including the government with its various departments related to biotechnology such as education, agriculture, health, science and technology, environment and Industry; Institutions of higher learning such as the university and research institutions, the industry, institutions of local self-government at the village level, farmers and the regulatory agencies. It also aimed to develop mechanisms for active collaboration with the Central Government so as to gain from the schemes and policies of the Centre in relation to financial support, development of trade and other commercial networks, training and regulatory assistance. Public-private partnership was expected to play an increasing role in promoting the growth of the sector.

WHAT THE POLICY AIMED AT

The Biotechnology Policy aimed at integrating the then existing achievements in research and industry while also strengthening and expanding the base so as to bring the State to a pre-eminent position in biotechnology development. The objectives of the policy were:

- To prioritize the thrust areas for basic and applied research and technology development
- To promote innovations in R&D by providing financial and infrastructural support and encouraging public-private partnership for R&D by allowing

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synergistic exchange of expertise and resources

- To provide quality infrastructure and an enabling environment for sustained growth and international competitiveness by effective networking among industries, universities and premier research institutions within the State, other parts of the country as well as abroad
- To develop human resources in various areas of biotechnology through enhanced financial support for higher education and research in universities in relevant areas of biotechnology
- To generate employment, for the highly skilled and specialized manpower
- To set up a venture capital fund to promote innovations of commercial importance in academia
- To encourage creation and protection of intellectual property and to ensure effective implementation of the IPR regime
- To provide financial support and incentives to industry to encourage local investment and to attract investment from other States and Nations
- To provide an institutional framework comprising the government, academia, subject specialists, venture capitalists, industry and industry associations and to evolve a well-defined structural and legal framework to achieve the above objectives

PRIORITY & FOCUS AREAS

Agriculture Biotechnology

Well aware that biotechnology intervention was imperative to make modern agriculture competitive and remunerative in the face of challenges such as declining availability of arable land, low and stagnant productivity of crops, production losses due to biotic (insects and other pests, weeds) and abiotic (drought, salinity and alkalinity of soil) stresses, post-harvest crop damage in storage and transportation and declining availability of water as an agricultural input, the following areas were to be encouraged.

Healthcare Biotechnology

Medical biotechnology was to be utilized to the maximum to develop affordable tools for prevention, detection and treatment of diseases, particularly those which affect women, children and the poor.

Industrial Biotechnology

In this area, food processing, conversion of renewable resources into value added products development of biotech tools for evaluating food safety and harnessing alternative sources/technologies of energy would be prioritised.

Environmental Biotechnology

A major thrust was to be given for the development of environmental biotechnologies such as development of cost effective bioremediation techniques, development of microbes to aid the environmental challenges, agricultural, industrial and municipal waste management.

Bioresource Utilization

Goa is endowed with a rich biodiversity. The animal, microbial, marine and plant resources are large and diverse and offer great opportunities for use of biotechnological interventions for their conservation and conversion to commercially useful products and processes in a sustainable manner. The following activities aimed at mapping of bioresources and their sustainable utilization were to be strengthened.

Bioinformatics

Considering the potential of bioinformatics in reducing cost and time of development of new products such as drugs, vaccines and diagnostics; in bioprospecting, conservation and management of resources, evaluation of products, processes and raw materials, management of complex databases etc, the government was to promote this area by catalyzing close interactions

through institutional/programme or tie ups among experts in life sciences and information technology.

Biosafety

Considering the expertise and available infrastructure in the State, there was immense scope for contract research and manufacturing, particularly in the areas of fermentation, marine biotechnology, data handling, data mining, drug discovery, bioinformatics, chemoinformatics, etc.

Marine Biotechnology

The State has a coastline extending over 100 km and sea fishing is an important economic activity in the coastal region. Apart from this, the State has over 250 km of inland waterways rich in marine and estuarine wealth, containing a variety of important fish, prawns and microorganisms. Use of biotechnology could achieve disease resistance, enhanced productivity, fertility and reproductive growth, exploration of marine organisms for novel genes and gene products, biopolymers, novel enzymes, therapeutic products, pollution monitoring etc.

RESEARCH AND DEVELOPMENT

Goa was to offer specific grants for setting up or upgrading R&D facilities in universities, research institutions and industrial research labs in the area of biotechnology. Existing universities/institutions active in research were to be provided adequate support for the pursuit of excellence in agri-biotech, marine biotech and healthcare, environment and food processing. These centres were to be designated as Centres of Excellence. Simultaneously, the government was to encourage universities and institutions to build an active network with national and international institutes of repute, while also promoting setting up of autonomous institutes with private participation for achieving excellence in specialized areas. Core facilities in specialized areas of genomics, proteomics and bioinformatics were to be set up to facilitate research in the latest trends in

biotechnology, and universities and health related institutes would be encouraged to take up contract research for industry and public agencies. So as to promote public-private partnership and to ensure better coordination among different R&D organizations, the government was to extend support to research institutes entering into partnerships with private companies for development and transfer of technology so that the fruits of research could reach the society faster.

INFRASTRUCTURE

The State Government promised to provide quality infrastructure for incubation of technologies and promotion of biotech industries by setting up one or more biotechnology parks, including a marine biotechnology park. There was also provision for the government to hold an equity stake in such projects jointly promoted with private partners by providing funds directly or in lieu of land allotted for the projects.

The Biotech parks were to promote closer interaction of the units housed in them with research institutions and universities in the State, and help in commercialization of the technologies developed in the institutions. A proposal was mooted for setting up a Goa University Biosciences Centre (GUBC) jointly by the postgraduate departments dealing in life sciences including marine biotechnology, microbiology, botany, zoology and marine sciences. The government was to consider integrating the facilities proposed in GBSU with the biotechnology park to maximize the benefits by pooling the strengths of the faculties and promoting industry academia interaction. The parks would facilitate all statutory and regulatory approvals and sourcing of venture capital funds. Women entrepreneurs were not left out and the State would consider providing special incentives to them.

HUMAN RESOURCE DEVELOPMENT

The life science and biotechnology sector is characterized by dynamic changes

by flow of new ideas and concepts in development of new tools for research. Human resources is the key to development in this knowledge-driven industry. Goa was to facilitate a study to assess the requirement of specialized manpower at the higher levels for teaching, research and manning production in industries in the area of biotechnology. A number of postgraduate and undergraduate courses in the area of biotechnology and allied sciences were introduced in various institutes and the university in the State. Some institutes and universities offering doctoral programmes were Goa University, National Institute of Oceanography, Goa Medical College and Goa College of Pharmacy.

INTELLECTUAL PROPERTY

The success of the biotech industry, as in other knowledge-based industries, depends on protection of the intellectual property resulting from innovation. To protect IPR, the government was to extend financial support to industry and research institutes for filing and maintaining patents. A patent information centre was to be set up with access to relevant databases.

BIOSAFETY

The increasing possibilities for exploiting genetically modified organisms (GMOs) and products derived from them for commercial purposes have also led to considerable concern about biosafety. The State, aware of this, was to facilitate setting up of adequate institutional mechanisms for implementation as well as monitoring of GMO development and applications as per the National Biosafety guidelines.

SOCIAL AND RURAL DEVELOPMENT

The government was to promote simple, low cost agricultural biotechnologies to generate rural employment, including mushroom cultivation, hardening facilities for plant tissue culture, vermi-composting and organic farming. Financial support would be provided in collaboration with NABARD for such projects.

INCENTIVES AND FINANCIAL SUPPORT

Apart from the natural and locational advantages offered by Goa for setting up biotechnology industries, in view of the various incentives provided by other States in the country to attract Indian and global companies and entrepreneurs for investment in the biotechnology sector, Goa government also proposed to match such incentives so that potential investors were not placed at a disadvantage. The State also recognized the importance of short term and long term incentives required for the growth of the biotechnology industry which could result in substantial returns to the State economy by the creation of wealth as well as generation of employment.

Various incentives were offered, a major one was the government declaring biotechnology parks as special economic zones, which would enable rapid growth of the industries located in them. Besides, the government would assist incubation of technology-based startups for innovative biotech products and services, besides which new biotech units were to be eligible for capital investment subsidy at the rate of 15 percent subject to maximum limit of Rs 15 lakh and an employment incentive to each unit at the rate of Rs 15,000 per employee per annum, to a maximum amount of Rs 75 lakh per year in one unit (for a period of two years starting from the date of operation).

It was also planned to exempt biotech units from entry tax on capital goods and raw materials for the first five years of project implementation, and registered biotechnology units that purchased or leased land and/or building in a notified biotechnology park or industrial estates under the Goa Industrial Development Corporation (GIDC) would be reimbursed the entire amount of stamp duty paid by the unit.

We were also aware that infrastructure was an issue and the government had assured reliable power supply to biotechnology units located in notified

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biotechnology parks and provide out of turn new connections to them, as well as grants and other benefits to units that wished to undertake activities relating to research in cutting edge technologies particularly in the areas of vaccines, diagnostics, therapeutics, transgenic plants and bioremediation. Very importantly, the government was to constitute a High Powered Coordination Committee to ensure expeditious clearance of biotechnology projects.

CONCLUSION

It is unfortunate that this sector was not given the required thrust by subsequent governments. Had the biotechnology policy that was conceived almost two decades ago been implemented at that time and revised at timely intervals, the industrial and employment landscape in Goa today would have been far different and so much better than it is currently.



An aerial photograph of Dona Paula beach in Goa, India. The image shows a large, green, forested island in the background, a smaller island with a fort in the foreground, and a long pier extending into the sea. The water is a deep blue-green color, and the sky is a pale blue. The fort is a small, white, rectangular building with a red roof, situated on a rocky outcrop. The pier is a long, straight concrete structure that extends from the shore into the water. The beach is a narrow strip of sand between the water and the forest. The overall scene is a beautiful coastal landscape.

Dona Paula:
A fable of love for always



A SUSTAINABLE GOA

“A river doesn’t just carry water, it carries life.”

– A.D. POSEY, American author

GOA HAS BEEN BETRAYED ON THE RIVER MHADEI

The River Mhadei is the lifeline of Goa and the State has to do everything possible to stop the diversion of its waters.

Goa is blessed by River Mhadei that is the lifeline of over 60 percent of the people of Goa. The River Mhadei is not just any waterbody but its basin stretches across vast stretches of Goa, it has got six wildlife sanctuaries that are protected by the government under various Acts, and Mollem wildlife sanctuary, part of the River Mhadei basin, is the world's 8th hotspot of biodiversity in the world. The water sharing and diversion issue of River Mhadei has been a prolonged one, and we are still far from finding an amicable solution to it.

As a concerned Goan and worried about the repercussions on Goa, I raised the issue in the Rajya Sabha, not once but four times. On November 29, 2022, and I was given an assurance in the Rajya Sabha that Government of India would not take any action till August 30, 2023. What happened was exactly contrary to this. Exactly, a month later, the Central Water Commission on December 29, 2022 approved Karnataka's Detailed Project Report for the Kalasa-Bhandura project on River Mhadei. This was yet another setback for the State of Goa, one of the many that the State has received over the sharing of the River Mhadei waters. I strongly condemned it at that time because it was just not right. The approval of the Detailed Project Report is not merely contempt of the Rajya Sabha, but also betrayal of the people of Goa.

It was not just me who saw that as a betrayal, but the people too felt that way. It, therefore, was not surprising that on January 16, 2023, there was a massive meeting at Sanquelim protesting the Centre's approval of Karnataka's Detailed Project Report for the Kalasa-Bhandura project. It was perhaps the first, and till now remains the only meeting on the Mhadei issue that brought people from every

taluka on one ground and with one motive. Goans reacted fast, from December 20, 2022 to January 16, 2023 and this shows their concern for the Mhadei.

Again, as a Goan who has battled for the State on issues that were considered unwinnable and brought them to a logical conclusion, I feel that if River Mhadei is the lifeline of Goa then the issue should not be decided based on partisan politics, it should be above politics where only the interests of the State should hold good and that the people's views be considered above all else.

The River Mhadei water sharing involves the future of the State as the river, known in Goa as Mandovi, flows through 52 kilometres in Goa, and though it originates in Bhimgad, Karnataka, it flows through 28.8 kilometres in that State. If there is to be an equitable use of the water, then logically Goa should get the larger share. But this complex issue cannot be decided on mere logic and requires substantive arguments. That is where Goa has failed, for the State's stance on the River Mhadei water diversion has been weak and it is this that has led to the series of setbacks.

Goa has never been able to match the political determination of Karnataka on the issue of diversion of the waters of the River Mhadei. In Karnataka, all political parties bond on the issue and speak in one voice, while in Goa, no matter which party is in power and which in opposition, when the Mhadei issue arises the opposition raises the issue and attacks the State government and the latter takes a defensive approach. In light of the fact that this issue dates back to the 1980s, this has been the manner in which governments and oppositions have reacted to the Mhadei, no matter who is in power, with of course the finger pointing at each other, to the detriment of Goa.

BRIEF BACKGROUNDER

To understand the current situation, here is a brief background of the dispute,

in relation to the Mhadei Water Disputes Tribunal award of August 2018. I won't go further back than that as the issue we are currently concerned with arises from this award. The Mhadei Water Disputes Tribunal in its award released 5.5 TMC of water to Karnataka—1.5 TMC to be used within the basin and 4 TMC to be diverted to the Malaprabha basin. It also permitted the neighbouring State another 8.3 TMC to be used for power generation. Karnataka had sought 36.5 TMC and against that got 13.8 TMC. On the other hand, against Goa's demand of 122 TMC of water, the State got 24 TMC, over and above the existing utilisation of 9.395 TMC.

Goa's contentions at the hearings had focussed on the argument that diversion of water by Karnataka would disturb the ecological balance and also harm our ecosystem, for Goa, being a coastal State any overexploitation of its fresh ground water would result in the increase of salinity in the groundwater as there would be ingress of salt water that would also damage the mangroves. Goa had also contended that it was a water-deficient State and any diversion would adversely affect its water supply and agriculture. However, Goa was unable to prove to the tribunal that it is water deficient, this despite the fact that in 1999 the Assembly had passed a resolution that Goa was water deficient.

Karnataka on the other hand argued that the Mhadei is a surplus water basin and the surplus water drains into the sea, and proposed that this surplus water be diverted to the Malaprabha basin, also in its State, that is a water deficit basin to meet the drinking, irrigation, agriculture and power generation needs of the areas through which the Malaprabha flows.

It is important to make a distinction between the usage of water within the river basin and diversion of water to another river basin. I have always believed that transferring the waters of the Mhadei river basin to the Malaprabha river basin in Karnataka will deprive Goa of its fair share of water. It is my further

belief and contention that the transfer of waters from the Mhadei river basin to the Malaprabha river basin in Karnataka will deprive Goans of their share of water to sustain their livelihood. It is rooted in this belief that when the Detailed Project Report for the Kalasa-Bhandura project was approved, I raised several questions in the Rajya Sabha. However, my concern for the Mhadei did not manifest only as late as in 2023, for even before that DPR was approved, I had already raised questions on the Mhadei in Parliament.

FIRST QUESTION IN THE RAJYA SABHA

I got the opportunity to raise the Mhadei issue in the Rajya Sabha three times in the form of questions and reproduce below the questions and the answers. The first question I put was replied to on August 8, 2022.

The question was in four parts:

- *The steps taken by the government to identify the key issues and risks to Mahadei river basin in Goa which represents 60 per cent of lifeline of the people of Goa due to diversion of water from Mahadei river basin by the neighbouring States of Karnataka and Maharashtra;*
- *The strategies needed to address the issues both in short and long term;*
- *Whether the government has any plan to appoint a neutral party who could consider the long term goals of the basin;*
- *If so, the details thereof and if not, the reasons therefor?*

A composite answer to all the four question was as under:

The Central Government, in exercise of the powers conferred by section 4 of the Inter-State River Water Disputes Act, 1956, constituted Mahadayi Water Disputes Tribunal (MWDT) to adjudicate upon the water dispute regarding the inter-State river Mahadayi. The Tribunal submitted its report and decision under section 5(2) of the said Act and the same has been published in the official gazette on 27.02.2020 as per order of Hon'ble Supreme Court.

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The Tribunal, after examination of the various proposals submitted by the States and keeping in view all available information and particularly from the view point of (a) sustainability of the resource, and (b) ecological needs, permitted the States to undertake specific water resources development activities as stated in clause VIII of its decision. Under clause XII of MWDT decision, there is provision to constitute Mahadayi Water Management Authority to implement the report and final decision of MWDT with its functions and compositions etc. Under para 1349 of its report, MWDT has inter alia mentioned the following functions:

I. Undertaking investigations/research/studies on all aspects of environmental issues, including that in respect of impact of climate change on water resources etc. and preparation of short term/long term action plans to address the issues.

II. Preparation of comprehensive plan for sustainable development of water resources with active participation of States.

However, the States of Goa, Karnataka and Maharashtra and the Central Government have also filed further references under section 5(3) of the said Act before the Tribunal. As per the provisions under section 5(3) of the said Act, the Central Government, vide Notification dated 21.07.2022, has extended the period of submission of further report by the said Tribunal for a further period of one year with effect from 20.08.2022.

As one can see from the above reply, this merely gave the status of the dispute.

SECOND QUESTION IN THE RAJYA SABHA

On March 13, 2023, after the Karnataka DPR had been approved, I got replies to another of my unstarred questions. The questions and replies are as follows:

■ *The actual quantities of water diverted from the Mahadei Basin by States of Karnataka and Maharashtra*

The States of Karnataka and Maharashtra have informed that no water is diverted

from Mahadayi basin.

■ *Whether the Government was aware of further attempts to divert the Mahadei water in Karnataka and the action Government has taken to stop the diversion of water from Mahadei Basin to Malaprabha Basin; whether the Government has approved the DPR of State Government of Karnataka*

As per the sub-clause (A) (ii) of Clause VIII & IX of Award and Final Decision of Mahadayi Water Disputes Tribunal (MWDT) as notified on 27.02.2020, the State of Karnataka is permitted to divert 2.18 TMC (61.8 MCM) of Mahadayi water at proposed Bhandura dam and 1.72 TMC (48.7 MCM) at proposed Kalasa dam only, subject to fulfilling the certain directions. The Cabinet has accorded approval for the constitution of the Authority namely “Mahadayi PRAWAH” under the provisions of section 6A of the Inter-State River Water Disputes Act, 1956 for securing compliance and implementation of the decisions of Mahadayi Water Disputes Tribunal (MWDT). The DPRs of Kalasa Nala Diversion Scheme (lift Scheme) & Bhandura Nala Diversion Scheme (lift Scheme) of State of Karnataka have been found technically acceptable by Central Water Commission from hydrology and inter-State aspects only, subject to strict compliance of certain conditions.

■ *Whether Government is aware of its repercussion on the six talukas in Goa and five Wild Life Sanctuaries dependent on Mahadei River and Bhimgad Wildlife, Mahadei Wildlife, Bhagvan Mahavir Wildlife, Bondla Wildlife and Mahavir Naional Park?*

Utilization permitted by MWDT for all three basin States is after taking into consideration the environmental flow in accordance with “Standard Terms of Reference for Environmental Impact Assessment or Environmental Management Plan Report for Projects or Activities Requiring Environmental Clearance under EIA Notification 2006” of Ministry of Environment, Forest and Climate Change published in April, 2015.

Since these were unstarred questions, I was given the replies in writing and am

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reproducing them as tabled in the House, for there was no discussion. As can be read from the above, the answer to the second question is not clear, for I had sought to know about 'further attempts to divert the Mahadei' waters and action taken by the government to 'stop the diversion of water from Mahadei Basin to Malaprabha Basin'.

What we already knew was that the DPR of Kalasa Nala Diversion Scheme (lift scheme) & Bhandura Nala Diversion Scheme (lift scheme) of State of Karnataka were found technically acceptable by CWC. Now this is the crucial point of the entire Mhadei issue as of now.

Before I discuss that in detail, there was another question that was answered on March 27, 2023 and which is connected to the above.

THIRD QUESTION IN THE RAJYA SABHA

■ *Whether Government has approved the DPR on diversion of water from Mhadei and its tributaries to Karnataka*

The DPRS of Kalasa Nala Diversion Scheme (lift scheme) & Bhandura Nala Diversion Scheme (lift scheme) of State of Karnataka have been found technically acceptable by Central Water Commission from hydrology and inter-State aspects only, subject to strict compliance of certain conditions.

■ *If so, the details of the works completed, works in progress, and the works planned for the diversion of water*

As per the information provided by the Government of Karnataka, no works have been taken up for the diversion of water in the project area subsequent to the clearance of DPRS of the proposed Kalasa Nala Diversion Scheme (lift scheme) & Bhandura Nala Diversion Scheme (lift scheme) from CWC. The proposed projects envisage the construction of dams/check dams across the streams namely Kalasa Nala, Haltara Nala, Surla Nala

‡ Bhandura Nala to divert the water into the Malaprabha river through lift schemes.

■ Whether Government has studied its impact on all the six wildlife sanctuaries dependent on Mhadei and its tributaries, its effects on ecology, environments, forest, and agriculture in the State of Goa, if so, the details thereof?

The utilization permitted by MWDT for all three basin States is after taking into consideration the environmental flow in accordance with “Standard Terms of Reference for Environmental Impact Assessment or Environmental Management Plan Report for Projects or Activities Requiring Environmental Clearance under EIA Notification 2006” of Ministry of Environment, Forest and Climate Change published in April, 2015.

DIVERSION CONDITIONS

There are two aspects of the Award that become relevant here. The first is that for the ‘purpose of regulation of the diversion of Mahadayi waters, the water year will be considered to start from 1st June and end on 31st May. However, the diversion of water will be permitted only during the five months monsoon period ie from 1st June to 31st October. Even if, some inflows are observed into the reservoir(s) during the non-monsoon period, no diversion is permitted out of the inflow during the non- monsoon period starting from 1st November to 31st May.’

The second is that a proper record of the quantum of diversion on daily basis be maintained with effect from 1st June. It states that ‘As soon as the cumulative quantum of diversion or utilization (including the reservoir losses) equals the permissible limit (1.72 tmc at proposed diversion point on the Kalasa Nala, 2.18 tmc at proposed diversion point on the Bhandura Nala and 0.56 tmc at proposed Viridi Large Minor Irrigation Project), no more diversion of water will be allowed and the gates will be closed and all inflows during non-monsoon period shall be allowed to flow downstream of the project.’

What arises from the above is how are these conditions going to be met. What

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is the mechanism to ensure that no water is diverted post October 31 and also the mechanism to quantify the water that is diverted in the monsoon months. The projects are in Karnataka, will Goa have access to the stations that are monitoring and measuring the diversion of water?

WHAT NEXT?

By now Goa should have initiated an environment impact assessment study on the water diversion. The state is still depending on statements rather than data and reports to back its arguments on the Mhadei issue. It is not possible to win the River Mhadei battle merely on rhetoric. Goa has to substantiate its arguments, especially on being a water deficient state, with more than mere statements.

As I pointed out earlier, there has to be a distinction made between the utilisation of water within the river basin and diversion of water to another river basin. The project involves the construction of three diversion dams that will severely reduce the flow of the river's water into Goa. This project is absolutely detrimental to the interests of Goa, it would be a disaster for the State. When the 'environmental approval' was accorded to Karnataka's Kalasa-Bhandura project Goa lodged a protest with the Centre and asked that the letter be withdrawn or it would move the National Green Tribunal. But that is not enough, Goa has to do more otherwise we will lose the Goa we knew, we grew up in.

Speaking in the Rajya Sabha, I had said that we are sad because today our ecology, our environment, our precious forests are being taken away by the Government of India. 'We want to protect our ecology, we want to protect our environment, we want to protect our forests, we want to protect our mighty rivers which are given to us by God and it is our duty to protect it, preserve it and hand over to the next generation. Our forefathers have painstakingly preserved our environment and ecology. The government of today has undertaken major projects which have not only destroyed our economy, our ecology, our environment and the livelihoods

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of the people of Goa,' is what I had said in the Rajya Sabha.

Goa is moving too slowly on the River Mhadei issue and if it continues to do so, then we are fighting a lost cause.



“Sustainability is a political choice, not a technical one. It’s not a question of whether we can be sustainable, but whether we choose to be.”

– GARY LAWRENCE

RECONCILING GROWTH STRATEGIES WITH SUSTAINABILITY

Goa’s tourism potential is enormous, and it has to build upon it to scale itself from a beach destination to a convention hub

There is no doubt about it, Goa is a brand, not just on the world's tourism circuit but even beyond that. In 1983 Goa hosted the Retreat of the Commonwealth Heads of Government Meeting. Presidents and Prime Ministers of various commonwealth countries, including Prime Minister Margaret Thatcher of Britain, Primer Minister Pierre Trudeau of Canada and others spent the weekend in Goa, where they were hosted by our Prime Minister Indira Gandhi. This CHOG-M retreat put Goa on the world map, but it would not be till 2016 that Goa would host another major summit, which was the BRICS heads of government meeting, that brought to Goa among others President Vladimir Putin of Russia and was hosted by our Prime Minister Narendra Modi. More recently, in 2023, Goa hosted the working committee meetings of the G20 summit. All these were political meets that indicated Goa's preference as a destination for summits. Besides these Goa has also hosted the Lusofonia Games in 2014, the National Games in 2023 and the Under 17 Women's World Cup in 2022. Since 2004, the state has been annually hosting the International Film Festival of India.

Goa is not a capital city like New Delhi or a financial capital like Mumbai or even a metropolitan city, yet the above events indicate that Goa is a recognisable brand in various spheres ranging from political to sports and entertainment and there exists the possibility to grow in this area. The state, however, will have to scale up several notches to improve its ratings in the hospitality sector. It currently stagnates as a beach tourism destination, and my dream for Goa in this sphere is transforming it into an international convention centre that will draw people from across the world. We have to aim high and I believe that Goa can achieve

it, building up from the aura that it has already created for itself and leveraging this for growth.

CPDA for tourism development

During my various stints as minister, I have never held the tourism portfolio yet this has been a subject that I have followed closely and I am of the firm belief that tourism in Goa is a localised phenomenon, concentrated in a very small area, but where a large percentage of the population is centred. Currently we are attempting to diversify but without much success as Goa has already been branded as a beach destination for leisure and rewriting that narrative will require much effort. In that respect, tourism can and should be used as a means to preserve and support natural endowments and cultural heritage where local residents are involved to enable them to understand the issues better, deal with it on their terms and share in the economic benefits.

In May 1993, I represented Goa at the ACOPS (Advisory Committee Meeting on Protection of the Sea) meet at Lisbon, Portugal, which was aimed at implementing Agenda 21 of the Earth Summit that had been held at Rio de Janeiro, Brazil. Here I had spoken on the environmental pressures that tourism development was placing on Goa and presented certain options for sustainable development of the state. Reviewing them three decades later, I find that these ideas are still relevant and what we hear being discussed in political circles today echoes what I had said at that time.

At the ACOPS meeting I had suggested that a Coastal Planning and Development Authority be set up and that a comprehensive development plan be formulated. While this never did materialise, there were guidelines issued that disallowed construction within 500 metres of the high tide line on the inward side, and restricted the coverage, floor area ratio, height of the structure among other suggestions.

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At that time Goa was still waking up to coastal environment issues and the plethora of starred and unstarred hotels that we see along the coast today had either just been completed and turned operational or were in various stages of construction. The coastal skyline has changed much since the 1990s and could be almost unrecognisable in certain areas. It was in the 1990s that the Coastal Regulation Zone was demarcated and classified as CRZ I, which included ecologically sensitive and important areas and the area between the Low Tide Line and High Tide Line; CRZ II were areas already developed up to or close to the shoreline; CRZ III were areas relatively undisturbed and which did not belong to either category I or II; CRZ IV did not pertain to Goa, but was restricted to the Andaman and Nicobar Islands.

Goa's tourism has grown exponentially since then 1990s, and the industry's potential is enormous, but it has not been structured or directed in a manner that is beneficial to the locals. Before I proceed further, I unequivocally state that any tourism potential should be subject to environmental concerns and not be left to market forces alone. It has to take into account the wellbeing of the local population and that appropriate plans and policies be formulated to benefit them. As such a development programme that remains consistent with the cultural, social and economic factors of the region, that does not exploit the tourist attributes of the regions for the sake of short term gains alone should be prepared. Goa's aim of achieving sustainable development depends on this and if these concerns are not considered in the plans, it will result in environment degradation, fall in fresh investment and loss of economic efficiency.

This was in 1993, since then Goa has progressed much in the tourism sector and its infrastructure has seen massive gains. However, there is one particular aspiration of mine in tourism, that I will outline here, which I believe is the right one for Goa's future.

Goa as a Convention Hub

In my long political career, I had the opportunity to visit many countries, and at one such, in 1995, I was designated leader of the Indian delegation to the International Labour Organisation Conference in Geneva, Switzerland. It wasn't a holiday or a conference where I could relax as I had to fight off international hostility on the issue of child labour which took on political undertones. Admitting that the problem had deep socio-economic roots, I called for triggering economic growth along with the political will to resolve the issue, and suggested a strategy that was realised in India—that FDI be invited for building infrastructure only. Times have changed since then but this was the era during which India was opening up and whose fruits we are consuming today.

However, since I was in Geneva for about a month attending the meeting, I did manage to see this city of Switzerland not just through the eyes of a tourist who hurriedly views the sights and rushes off to catch the rest before the tour bus sounds its horn, but view it more carefully, make a study and take away ideas that I could employ in Goa.

Geneva is an international city, the European headquarters of the United Nations, and hosts the highest number of organisations in the world, including the World Health Organisation, World Trade Organisation, CERN, Red Cross, Rotary International and others. As a result the city is considered as a global hub for diplomacy, humanitarian efforts and scientific research. This results in Geneva hosting the highest number of meetings per year—upwards of 12,000 as I was able to find out through some research—bringing to the city people from every nation, creating employment for thousands and contributing immensely to the economy.

But, when one looks minutely at Geneva, what exactly does the city offer? It offers the space, buildings where all these organisations are situated, housing

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for those working in the city, hotels where delegates to the meeting can stay, restaurants where those visiting can have a meal, transportation in the form of public buses, trains as well as private taxis. All these are avenues for the locals to earn.

I would like to see Goa transform into something like that, an international hub, a convention city or state where people from across the world will come, not just as tourists on a holiday, though a convention centre will bring good quality and high-spending tourists too, in the form of delegates to meetings who will become ambassadors of Goa when they return to their home countries. Goa's climate, its friendly people and its brand recognition can all be utilised to make the state a second Geneva.

During that time I travelled to other countries on the weekends and had a pleasant learning experience in Copenhagen, Sweden's capital and a port town. Stockholm is one of the cleanest cities in the world. I was shown the port which was absolutely clean, even the waters were clear and when I commented on this, I was told that is was not always so. The water, as in any port, used to be dirty, but efforts were made to not just keep the city clean but even the waters. In the same city, I chanced upon a huge chimney that had steam emerging out of it. When I sought to know what it did, I was told that this was a garbage incinerator that was not only incinerating the city's waste but whose steam was being used to create energy.

Stockholm is also a tourist destination and in spots frequented by tourist you will find books, pamphlets and literature, explaining details about the city, especially what you can do and more importantly can't do. In Sweden it is possible, even encouraged to go to the forests for a picnic, but you can't litter or damage the place, and though this is a cold country, you are not even allowed to light a fire. The reason for not permitting a fire in the open air is that it can

heat up the rocks in the vicinity and damage or crack them, that's how rigorous Sweden is with its environmental rules, such that in Sweden everything is so clean that they say you can drink water from anywhere, even from any stream, it is that pure.

I visited also some kindergartens in Sweden and I was surprised at the manner in which they teach students at that level. A child who brings food to class is taught how to deal with anything that is surplus so that there is no wastage. At a young age children are trained how to recycle.

In 2015 I was invited as a guest to speak at the NRB International Christian Media Convention at the Gaylord Opryland Resort and Convention Centre in Nashville, Tennessee, USA. NRB stands for National Religious Broadcasters and it has in the past hosted US Presidents including Gerald Ford, Jimmy Carter, George H W Bush, George W Bush, Ronald Reagan and also current US President Donald Trump. Here I extolled on India's extraordinary diversity and highlighted how, despite its many cultures, languages and traditions, India remains a united and resilient nation.

The reason for referring to this conference was the convention centre that mesmerised me. It was unimaginable, built over acres of land and as per their website has 7,66,718 sq ft of space, with 92 event rooms, 106 breakout rooms and its largest space boasts of a capacity of 10,000 people. It has board rooms, suites, exhibition halls, everything possibly required within the same property.

The reason for bringing Geneva, Copenhagen and Nashville into this discussion is that it left me wondering whether Goa could do build something of this sort. I believe that Goa can take a leaf from all these three examples and reinvent itself as a convention hub, while focussing on conversion of pollution into a source of energy and inculcating in children the importance of recycling.

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If Goa is to upgrade its tourism profile and its infrastructure, then these are some cities and projects that we could look at, but here I would restrict to Goa as a convention hub.

It's now two decades since the idea of a convention centre for Goa was first mooted and has not progressed beyond the discussion phase. This delay reflects on the slow pace at which the state works. What I am proposing, a convention hub, could easily be misunderstood as a mega project and give rise to polemics, so to clear any such doubt I have to state that what I have in mind is not something that will displace our people or harm our environment. It will, on the other hand, contribute to Goa in the form of employment to Goans and as a revenue earner to the economy. Conventions benefit not just the host centre, but lead to booking of rooms, hire of taxis and coaches, extra diners in restaurants, sightseeing possibilities. These are businesses that can all be owned and managed by Goans. For instance, all our taxi owners are Goans and every convention will be a major business opportunity for them. There is the possibility of Goans even starting small entrepreneurship around the international hub.

Yet, simultaneously we may have to introduce some restrictions on tourism footfalls and tourism in general. For an example at how it can be done we require to look at Bhutan, where there is a control on the number of tourists who enter the country. A tourist to Bhutan has to declare how many days he or she will be spending in the country and are charged a fee at the entry point for those number of days. Could Goa introduce some such measure?

All what I am suggesting is in sync with Goa's promotion of itself as a MICE (meetings, incentives, conferences, exhibitions) destination, whereby business and industry meets and conferences are encouraged. My aim is to take this to a higher level in a manner that will benefit Goa, Goans and the tourism industry. If Goa is to achieve the status of a top-tier MICE destination, where it will host

major global conventions, it must invest in better infrastructure, streamline logistics and position itself with a focused strategy. The doubts that surround this are many. Is Goa ready for this? Is Goa suitable for this? Is Goa capable of something of this nature? Most of these can be settled with a scientific study of the state's carrying capacity.

Urgent Need For Carrying Capacity Study

I am aware that certain villages in Goa, especially those along the coastal belt and those neighbouring urban areas, may have already exceeded their carrying capacity, given Goa a rural feeling. Goa has 14 municipalities and 181 panchayats, but under the census rules, it accounts for 56 census towns, wherein for census purposes, a village is identified as an urban agglomeration if it has a population of over 5000, has at least 75 per cent of its male population engaged in non-agricultural activities and a population density of 400 persons per sq km. So in 2011, of the 181 panchayats 56 met this criteria and to me this indicates unplanned development, hence any project in the state has to be backed with a scientific study that verifies not just that village's capacity to handle the added pressure, but that of Goa as a state as effects of development are not restricted to the jurisdiction of a panchayat.

We are repeatedly reminded that Goa has not conducted a carrying capacity study, that we have limited land and resources, and that the population has grown exponentially in the past. It's quite true. Goa measures 3,704 square kilometres, has a population of 14,58,545 as per the 2011 Population Census, with a density of 394 persons per square kilometre, which is higher than the national average of 382 persons per square kilometre. Pertinently, the 1961 Census had enumerated 1,26,335 households in Goa, which increased to 3,43,611 at the 2011 Census, showing a 172 per cent growth in households in 60 years. The projected population for 2025, as per the Economic Survey 2024-25, is approximately 15,96,000. The Economic Survey also establishes that almost 50% of the State's

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population is between the age of 15 and 44 years, which indicates that this is a young population with possibility of more growth.

Therefore, before we can leap into any infrastructure projects, even of the likes that I have proposed above, Goa has to commission a carrying capacity study that will assess the maximum population or activity level in tourism and development projects that the state can support without causing any unacceptable degradation to its environment, infrastructure and the local community. There can be no compromise on this, for we may have plans, but they have to be feasible not just as revenue generating projects, but as beneficial to the entire community. Today we are conducting environment impact assessments of certain projects, but Goa has neglected a carrying capacity project, which for a small state with a fast-growing population and an eco-sensitive topography is an absolute necessity.

Since what I have suggested above broadly comes under tourism and infrastructure development, a carrying capacity study could augment planning processes in various vertical, including identifying limits for tourism, construction and resource use to avoid degradation of coastal areas; limits on the number of tourists an area can sustain without harming the locals, the environment and the experience of the holidayers. More importantly, it would help planners design roads, sewage systems, transport systems, housing at appropriate scales, preventing overburdening of urban areas due to unplanned growth, while supporting zoning decisions and providing data to manage resource supply and demand more efficiently.

Conclusion

As a coastal state and currently reliant on tourism to a large extent, Goa faces environmental challenges, resource depletion and habitat loss. The state has turned to eco-tourism and is promoting organic farming that will aid in preserving existing ecosystems. Simultaneously, Goa is propounding regenerative tourism practices and promoting spiritual tourism, but how much of this is changing

the perception of the state being a beach and nightlife destination is difficult to gauge at the current time.

We need, therefore, to achieve the balance that determines the middle ground between economic growth, environmental preservation and social equity, in short, sustainable development, that is no longer a new term but one that has remained elusive in Goa.

Sustainable development means meeting the needs of the present generation without compromising the ability of future generations to meet their needs. It brings together two strands of thought about the management of human activities—one concentrating on development goals and the other about achieving these goals without damaging the life support systems or unsustainable resource use. This is what I seek for Goa in tourism and infrastructure development, activity and projects that benefits all and not just certain sections of society.



*Government has to produce affordable housing.
Government has to produce answers.*

- ALEXANDRE PELOSI

HOUSING FOR ALL, A DREAM UNFULFILLED

Despite efforts to ensure that every Goan household had a house, even in 2025 this has not happened

In recent times, Goa's panchayat areas have been in turmoil over mega housing projects within their jurisdictions. These panchayats are spread across the State and not concentrated in any particular taluka. The reason for this is the conversion of large tracts of mainly agricultural land to settlement areas permitting the construction of residential enclaves. The reason villagers are protesting is because most of these housing projects are aimed at the upper-middle class and even the luxury market. Yet, against this backdrop of protests over mega housing projects, Goa cannot ignore the fact that a large number of Goans are unable to purchase houses.

Goa has seen an increase in the number of households. The most recent Economic Survey of 2024-25 makes two pertinent points—that the number of households is increasing and so is population density. It points out that there has been a 'significant increase in the number of households in the State'. The facts are these—in 1961 the census enumerated 1,26,335 households in the State, which increased to 3,43,611 in the 2011 census, making it a 172 percent growth in households in 59 years. Additionally, the population density of the State stood at 394 persons per square kilometre as per the 2011 census, an increase as compared to 2001 census when it was 364 persons, and higher than the national average of 382 persons per square kilometre. There was no census in 2021 due to the pandemic, but the projected population, as per the Economic Survey for the year 2025 is 'expected to be approximately 15,96,000'.

The increasing population and density urgently calls for a carrying capacity study of the State. A scientific carrying capacity study that is data-driven would

guide Goa's growth taking into account sustainability by identifying the limits within which growth can occur without compromising on the environment, the infrastructure and quality of life. Such a study would assess whether existing infrastructure, including roads, water supply, sewage and waste management, can support the current and projected population, ensuring new housing or commercial projects are approved only in such areas that have the capacity or where these can be added sustainably. Similarly, it can bring about a balance in the ecosystem, an aspect of extreme importance given Goa's fragile ecosystems of coastal areas, forests, wetlands and hence limit development in ecologically sensitive zones.

Additionally, it would assess the current water and energy consumption patterns as well as garbage management and relate them to sustainable thresholds ensuring that population growth doesn't outgrow the available resources nor overwhelm waste disposal systems.

Further, though Goa does have outline development plans for urban areas and the regional plan for rural areas, a carrying capacity study would provide evidence-based reasons to land-use zoning policies to control density and distribution of population.

Requirement of low-cost housing

We cannot ignore the need for housing for all. Goal 11 of the Sustainable Development Goals of the United Nations Development Programme aims to foster inclusive, sustainable urbanization by providing access to affordable housing, public transport, essential services, and green spaces, through improved urban planning and management. Besides, our Swayampurna Goa programme in Phase I had housing for all as a focal point. It is important therefore to differentiate between mega projects aimed at the upper class and affordable housing.

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In September 2024, Goa Chief Minister Pramod Sawant announced that the government was in the process of formulating a scheme for low-cost housing for Goans in every taluka. It was not the first time that the Chief Minister had referred to affordable housing and in July of the same year had proposed a housing scheme to provide flats costing between Rs 15 lakh and Rs 20 lakh, to native Goans. The housing situation in Goa is a critical issue and was discussed in the 2024 Monsoon session of the Goa Assembly with MLAs expressing concern that Goans find it difficult to buy a house and that in the future, Goans would be without a house in their own land. This is because with land prices skyrocketing, land today is beyond the reach of the salaried Goan and cost of apartments too have shot up. Again in the monsoon session of the Assembly in 2025, the government had announced low cost housing for all.

Under the current circumstances, a Goan who is earning a living through a salaried job, cannot imagine buying land in Goa and building a house. Even purchasing an apartment would be quite inconceivable to many. The aim of the Goa Housing Board was to provide low-cost flats, but the construction quality did not come up to average and its efforts failed. How then will Goans be able to afford housing?

In addition to this, the government recently brought about a hike in the minimum rates for land in Bardez, Pernem, Salcete, Mormugao and Tiswadi. It is a steep hike, in the range of 250 percent and going up to over 350 percent. The reasoning behind this hike is to bolster the State coffers as this base price is what is accounted for the payment of property tax, in particular stamp duty payable on sale of land. The base rate, however, is not the market rate which can be multiple times higher and deals made are at the market rate, while the sale deeds are often shown at a lower rate to reduce the tax liability. The new base rates will mandate that the buyers and sellers do not undervalue a property to escape the tax. The revision of the rates, establishes a fact that is well known in the State—that land

prices in Goa have risen multiple times and that the possibility of buying land is slipping away from the hands of the locals.

In October of 2024, the fifth meeting of the Group of Ministers (GoM) on Boosting Real Estate, headed by Goa Chief Minister Pramod Sawant and held in Gandhinagar, Gujarat, reviewed the value limit of Rs 45 lakh in the definition of affordable residential apartment for a metropolitan area and recommended that the value may be revised. It was also decided to consider the revised limit for affordable houses once the same is decided by the Reserve Bank of India.

Housing Policy of 1993

Reading these and various other news reports, I recollected that in the 1990s, when I was Housing Minister, these same concerns had arisen and had led to me to formulate a Goa Housing Policy, Strategy and Action Plan. I went back to my files and as I leafed through them, I found that they are also very relevant to today's situation. I am reproducing here extracts from that policy and action plan, that I feel could come of assistance today, when the government formulates its plans for affordable housing.

'For most Goans the question is not the etymology of 'house', but the dire necessity of finding a house, a roof over one's head, a shelter, a guarantee of minimal comforts. Go anywhere, to any Goan town or village, and you will at once realise that owning a house tops the list of priorities achievable in one's life-time. This yearning reflects the character and personality of Goans, their sense of independence and decency. The other priority is food, good food, and whether house or food, it is unique in its concept, and a mirror to Goans' inexhaustible inventiveness, their sense of aesthetics and the capacity to blend the best of the East with the best of the West, the best of tradition with the best of modernity.'

The above has been excerpted from my message to the Goa Housing Policy 1993. It still resonates with Goa and very pertinently, at the present time, when

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we are faced with a situation where Goans are not able to afford a house in their own land. In any place, this would be unacceptable and a question that comes to mind is: why have we descended to such a situation? Couldn't this have been avoided with some vision? I believe that it could have been avoided or at least partially alleviated, and as I look at the Goa Housing Policy, Strategy and Action Plan, I believe that there are portions of it that are relevant even today, simply because not much has changed.

Today, like in 1993, owning a house has remained an unfulfilled dream for many Goans, and building one becomes a source of unforeseen worries and daunting hurdles; rules and regulations, palms to be greased, corners to be cut, and escalating costs and time overruns beyond one's worst fears. To circumvent this, it was planned to create a 'Single Window' system, where one fetches and obtains all the licences, all the clearances, all the NOCS, at the official rates. This would avoid middleman, influence peddlers, bribes and gifts.

In formulating the Housing Policy, the idea was to have an action plan to provide houses for all by 2001. The idea was to go for a horizontal spread—no dizzy skyscrapers—building satellite towns or villages, where each householder would have all the amenities within his reach, physical no less than financial.

The priority in the policy was to meet the needs of special category of households belonging to disadvantaged groups, such as OBCs, slum and squatter settlements, landless labour and people in rural areas.

Broad Perspectives Of The Goa Housing Policy

In May 1992, the Government of India, released a National Housing Policy. This policy provided the framework for States to initiate work on the preparation of similar policies at the State level. The Goa Housing Policy, Strategy and Action Plan was prepared within this framework, keeping in view the State-specific

needs, problems, resource base and the capabilities of the actors in the State's human settlement sector.

Magnitude Of Housing Problem

The State Policy was framed in the light of the housing problem as it existed in 1993 and the projected scenario in the housing sector over the next decade with the objective to facilitate each household to have a house by the end of the century. It was to take into account the demand likely to be generated by the anticipated increase in the population and households, and the demand emanating from overcrowded housing units and the replacement demand of the existing housing stock.

Housing Conditions And Development Needs

A distinct feature of the Goa housing settlement pattern was the close relationship between villages and towns, which still exists today. There was and is a clear preference to live in villages and visit towns for purposes of employment and other work. While this proclivity may have undergone a change, the village-town relationship, nevertheless, does remain. The policy implication for housing was that those who were once members of joint family households in villages were looking forward to possessing self-contained dwelling units in urban areas.

Objectives Of The Policy

- To motivate and facilitate the people and, in particular, the homeless, the inadequately housed, the vulnerable and the disadvantaged people, to own their own house by 2001 AD
- To facilitate accessibility of the people to housing development-related inputs, such as building materials, technology and finance
- To encourage and promote investment in housing and development-related infrastructure sectors, especially drinking water, sanitation and basic services
- To facilitate the people to mobilise savings for a housing programme through

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development of State-specific saving instruments, saving mobilisation and saving delivery systems

- To provide and also facilitate the provision of services considered essential for a congenial human settlement in the Goan perspective
- To facilitate the development of integrated human settlement programmes for simultaneous upgradation of shelter and economic status of the people so that housing programmes become affordable to them
- To encourage, promote and facilitate the utilisation of local materials, local architecture and environment-friendly human settlement programmes

Priority Areas

- Housing sector programme to be a people's programme, formulated on the basis of proper assessment of their needs, absorbing capacity for housing and time-schedule
- In order to provide cost-efficient housing solutions, which can effectively reach out to the people, government intervention will be directed primarily towards creating a facilitating environment
- The government would, however, continue its housing construction activity for special target groups, who would not normally be reached out through only a facilitating role of the government
- Provision of serviced land at locations considered appropriate by the people in the context of their workplace
- The emerging institutional housing finance system, through the network of the National Housing Bank and housing finance institutions

Housing Norms

Broadly, in rural areas, the size of a plot would not be less than 125 square metres and more than 250 square metres keeping in view the need for integration of shelter and workplace. In urban areas, the size of a plot would not be less than 50 square metres and more than 200 square metres. The norms for the forest/

hilly areas would be different.

Guiding Principles

- To formulate a policy and action plan on the basis of State-specific assessed needs of the people, local housing typology, availability of resources, materials, technology, finance and manpower
- Affordability of the people to absorb the housing solution
- Utilisation of the delivery system outside the government sector where government intervention should be less in the form of a builder of housing stock and more in the form of a facilitator of the development of a housing delivery system
- Promote a phased housing development programme wherein the people are encouraged to develop their housing unit progressively
- Encourage the people to spell out their housing programme sufficiently in advance

NEW HOUSING SCHEMES

Apart from housing programmes for special category households, like slum and squatter households, OBC households and rural landless labour, the State would promote housing activities for rural households in general.

Rural Housing Scheme

The Rural Housing Scheme was a priority programme aimed at taking housing to the grassroots level by providing housing sites to the less privileged section of the rural population. Under the Scheme, 50 to 100 housing sites per panchayat were to be provided in phases to the economically weaker section and lower income group population without houses.

SUGGESTIONS FOR A HOUSING POLICY

It is necessary to develop short-term and long-term strategies and action plans

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to meet housing needs, as housing has been recognised as a basic need and as an agent for providing a strong base for upgradation of the economic status and quality of life of the people.

Strategy To Formulate Action Plan

The strategies to achieve the goals of affordable housing should be implemented through component-specific and need-based action plans and developed at the district level and at the taluka level.

HOUSING STRATEGIES

■ Partnership Approach

The effective approach of all actors in the housing delivery system will not serve to provide cost-efficient solutions and reach out housing to all segments of the people. A partnership has to be developed between the government and its agencies on the one hand, and the private sector, the co-operative sector, the community and the individual participants in the housing programme, on the other hand.

■ Phased Housing Development

In recognition of the increasing magnitude of housing needs and anticipated improved affordability to absorb a housing solution, a phased housing development programme should be promoted.

■ Supply And Management Of Serviced Land

In view of the finite nature of land and government policy decision to preserve the environment, a large portion of land in the forest/ghat areas and along the coast cannot be utilised for housing. This effectively restricts land use for housing to about half of the total area of 3700 sq kms. Further constraints on land supply arose from regulations on orchard land having up to 25° slope and tidal wave conditionalities.

3-Stage Formula For Land Supply Strategy

- Study/assess people's needs of housing locations and quantum of land required
- Identify possible vacant sites in and around the desired locations
- Seek to acquire the identified sites through a well-drawn acquisition programme within a pre-determined time schedule

Strategy for Affordable Housing

With the density of population and prices of land rising significantly, often much higher than the all-India prices, the issue of providing access to serviced land at affordable prices is critical in the Goan housing scenario. A strategy covering the following aspects is suggested:

- Provide guidelines on comunidade land, to marginalise the role of ad hoc interventions and facilitate availability of land as per the location and needs of the people
- Streamline procedures to obtain conversion sanad and reduce the stages of processing for which a mechanism has to be explored to exempt plots from the stipulation of obtaining conversion sanad if they are located in areas where land-use maps indicating residential use have been finalised

Coordination Mechanism

There isn't an agency responsible for all the housing programmes in the State, or for channelising of the requisite development inputs. A nodal agency needs to be identified to coordinate all public housing programmes and to ensure that all land and housing-related clearances are obtained through a 'single-window' mechanism, which would facilitate accessibility to institutional finance as well.

Local Architecture And Designs

Interlinked with the strategy to encourage and promote use of local-based building materials, the government should promote local architecture so as to

preserve the traditional Goan lifestyle and heritage and to facilitate the use of local materials, thus bringing down the cost of housing development.

Goan vernacular style of architecture consists of walls and veranda pillars from laterite blocks with a plaster rendering, roofs of wooden beams and Mangalore tiles having a steep slope. The house has a set of rooms around the razangoon or courtyard; these are known as orso (hall) at the front, vasri (dining room) at the rear and a few kurhy (living rooms) on the sides. The sopo or bollcaum (balcony) is a major landmark at the entrance, usually a columned porch with a pyramidal roof. The modern architecture combines the hall and dining rooms, has no traditional balcony and no courtyard.

The government should examine ways to provide incentives to households that would use local architecture and designs in their housing typology.

CONCLUSION

Though I am not in favour of Goans selling their land and it pains me when I learn of these instances, on a pragmatic note the issue today is not so much of people selling their land, but of conversion of land use. There is no mechanism that can stop migration and none that can curb one's right to sell the land they own. There can, however, be a mechanism to stop the conversion of land use. We read on the mainstream media of protests over mega projects and on social media there is an outpouring against Goans who are selling land to the outsiders. It is an emotional release, but why will a Goan not sell his land if he is seeking to uplift his economic conditions? If the government is unable to ensure that the Goan gets employed or receives a fair wage or salary for the work he does, can you blame that same Goan for selling his ancestral land?

Instead of attacking those selling land, I would strongly recommend a carrying capacity study as mentioned earlier in this chapter, whereby we would prevent

overdevelopment, revise the existing zoning plans based on a scientific study, prioritise housing for Goans at a cost-effective measure, restrict building in eco-sensitive zones thereby protecting our natural assets and control slum development. This would involve not just the State government but also the local governing bodies, providing them with the opportunity to participate in planning in a more direct manner.

I conclude here, reinforcing the call for a carrying capacity study that would provide us with the tools for the sustainable growth of Goa within the possible limits as established by a scientific study.





Tigers in Goa:
Awaiting their moment

SUMMING UP



“The children of today will make the India of tomorrow. The way we bring them up will determine the future of the country.”

– JAWAHARLAL NEHRU

PATHWAYS TO A BETTER GOA

Invest in the children
to transform Goa for
a better tomorrow

The only constant is change. There cannot be growth by remaining stagnant. It is a journey that has to be undertaken and just as a journey is planned far in advance so as to reach a predetermined destination, so too has the growth and development trajectory of a land be similarly planned, or we will never achieve the aims that were envisaged.

Goa, post 1961, unfettered by the chains of colonialism, had the distinct advantage of starting out on such a journey that could catapult it as the most developed, most efficient, state of the Union of India. It undertook this journey, with unfailing hope of a better tomorrow, but then bends, turns and crossroads appeared on the way, acting often as stumbling blocks that slowed down that development, with the State, perhaps even at times, taking some wrong turns that changed the course of that journey.

Today, Goa stands at a critical juncture in that unending journey. The State has, undoubtedly, taken commendable strides in several areas, having achieved much in all sectors. Goa today is envied for what it has achieved, even bagging awards in the small states' category. But many of those successes have upset the balance of nature in certain areas. There is, therefore, an urgent need for balanced, inclusive and sustainable growth.

If you have read this far and arrived here, at the end of the book, then you will have appreciated the fact that this book, through the preceding chapters, is promoting A Better Goa. In essence, it is advocating change, but change can have wide connotation, so, what change should it be?

I asked myself, what does a better Goa encompass? I jotted down some points and managed to fill a page with my thoughts. At the top of the list I would put a Happier Goa, and follow it up, though not necessarily in this order, but with Greener Goa, Harmonious Goa, Greater Goa, Cleaner Goa, Safer Goa, Enlightened Goa, Secure Goa, Peaceful Goa, Healthier Goa, Prosperous Goa, Futuristic Goa, Beautiful Goa, Balanced Goa, Knowledgeable Goa, Sustainable Goa, Aspirational Goa, Re-emerging Goa, Resurgent Goa, Empowered Goa, Rising Goa. If you ask me, then I could go on with this list, but I had to end it somewhere.

The vision for 'A Better Goa', as has been outlined in these pages, is not about creating infrastructure in terms of roads and buildings, though these are central to progress and cannot be avoided, my vision goes beyond this, it is about creating a prosperous, equitable and environmentally responsible State. My dream for Goa, goes beyond human development indicators, economic indicators or health indicators. When I visualise a better Goa, it see an improvement in the quality of life which will bestow upon Goans a peaceful, harmonious and happier Goa.

Children, our wealth and future

As I reflect on this, a question that troubles the mind is how do we achieve a Greener Goa, Cleaner Goa, Beautiful Goa, Healthier Goa—in essence a Better Goa? Where do we start?

We do have rules, regulations, policies to achieve these. We may even have too many of them, but are they achieving what they are meant to? I believe not. A very common example to illustrate what I am saying is that of garbage strewn along the roadside. There is a penalty for littering, there are boards that caution people on littering, but does anybody obey these? This is happening because our culture has changed, our education has changed, our upbringing has changed, our way of life has changed, our respect for our society, for our state, for our soil,

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for our land, for our people has changed. This has led to a change in behaviour. I therefore do not believe that a change can be achieved by creating or enforcing rules; what it requires is a cultural turnaround whereby we create a new culture and inculcate these habits in children.

Here, I would suggest that we take a leaf from Japan, where character education plays an important role at the elementary level. Since the 1970s the country has had a character-based curriculum introduced at the kindergarten and elementary school level, that has succeeded in building a society that is independent, disciplined, responsible and cooperative. This has been possible through the moral and personality education in Japan, which are taught in the early years of childhood, not through subjects, but as applications in daily life. We so require such a curriculum to build our state and country.

The greatest wealth we can ever have are our children. They are the future citizens and future leaders and they have to be prepared for their leadership role at home and in the school, by encouraging them on good habits right from the kindergarten level. I deliberately employ the term encouraging, as this cannot be forced upon the children, they have to come to the understanding that such habits are for their personal development, for that of the neighbourhood, of the society and the country. An improved education system that starts imparting such knowledge in the early years of schooling—the pre-primary stage itself—and keeps it up throughout years, can bring about a sea change in behavioural habits. Such teachings have to be included into our educational framework and only then will we be able to get rid of our garbage menace, the unhealthy way of life, the destruction of ecology, environment forest and trees.

Goa, leader by example

‘A Better Goa’ has explored the development of the State across several sectors, in which I was able to play a role as a minister and chief minister, and outlined the

steps taken in the past with suggestions and recommendations to achieve holistic progress in the future, where skill-based industries, information technology, and green industry should be prioritised. Quite simply, we have to work smart and so I am suggesting, nay, praying for, a balance between modernisation and preservation, where we will integrate sustainability with development as we aim for a better Goa.

For decades, Goa's economy relied on just a few sectors. Post Liberation, Goa spiritedly moved from an agricultural economy and turned dependent on mining, a sector that dominated until the 2010s. In the 1980s tourism came to yield influence mainly in economic terms and in more recent years real estate and construction have wrested the initiative from mining and tourism. Sadly, we have been blinkered in our vision and these three sectors—mining, tourism and real estate—have only exploited the land without contributing to it in any manner. It is these that have caused the imbalance in the environment, but beyond that today we have been made conscious of the mistakes in all these sectors that have brutally affected Goa. Illegal mining led to the ban on mining activity and the sector is yet to resurface from the downfall; a downturn in tourism has the State currently attempting to rectify the path taken and increase footfalls; and protests across the State aimed at megaprojects and gated complexes that are transforming the face of our villages are increasing. Land and environment have been the common factor in all three sectors and the people are alert to how the land that was once green is turning grey and the air that was pure is polluted. These are the perils of development but they can be contained with an understanding that we work on the premise that Goa can take so much and not more.

Before breaking out on any plans, Goa must undertake a carrying capacity study.

It is essential that Goa diversifies, creating employment opportunities for its

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people, reducing the migration—both, out of Goa and into Goa—that is bringing about demographic changes that in turn are altering the culture and identity of our land. Goa has a high literacy rate. In 2025 it achieved 100 percent literacy, but there exists a disconnect between education and employment. Quite simply, the State must upgrade its education system by introducing 21st century skills, promoting vocational training, and investing in higher education research supported by digital learning infrastructure and trained teachers. Education should be geared not just toward employability but also toward social responsibility and innovation.

On the other side of the spectrum, Goa's biodiversity, the forests in particular, are under increasing threat due to urbanization and pollution. A truly better Goa must treat environmental protection as non-negotiable, with reforestation and protection of its wetlands the priorities. I so wish to see the day when Goa leads by example in climate-resilient infrastructure, solar energy adoption and plastic-free policies. They are all possible, but only if there is political will that is imposed on the administration and if we move on a mission mode on achieving these, with the people's support.

A better Goa, as I visualise it, would be one where governance is responsive, administration is transparent, legislature is accountable, policies are inclusive and public participation non-negotiable, all this while empowering the youth and creating a more engaged and responsible society. Whatever is being planned today is for the youth and those who will come after them.

Broad liberal vision required

As leaders and planners, we need to be inclusive, ready to welcome ideas, liberal in our thinking and in our vision. I believe that I am a liberal and I am reminded here of the words of former US President John F. Kennedy, who said, "If by a 'liberal', they mean someone who looks ahead and not behind, someone

who welcomes new ideas without rigid reactions, someone who cares about the welfare of the people—their health, their housing, their schools, their jobs, their civil rights, and their civil liberties—someone who believes that we can break through the stalemate and suspicions that grip us in our policies abroad, if that is what they mean by a ‘liberal’, then I’m proud to say that I’m a ‘liberal’.”

The idea of this book ‘A Better Goa’ is not about blindly chasing modernity, but about ensuring that development benefits all, without compromising on the environment or the culture that makes our Goa so special, one that gives Goa and Goans an identity that we are all proud of. What has been proposed in the book is eminently doable, all it requires is effort from policymakers, civil society, the private sector, and the unstinted support of every Goan. Some of it has already been taken forward, but governance is ongoing and we can never over plan, as what is envisaged, as long as it is done with the right motives and perspectives, will never be wasted.

I have outlined my vision, garnered through years of experience, long and thoughtful conversations with the best minds in India and abroad, what it now requires is to be executed. I am confident that with smart planning, inclusive growth and a deep respect for our heritage and environment, Goa can emerge as a model for sustainable and balanced development in India, as the State that all others will envy and want to emulate.

The hour for Goans to make Goa proud has come, perhaps it has come and gone and is here again. We shouldn’t be viewed as only a top tourism destination but also as an educational hub, a knowledge and innovation centre, an agricultural granary, an IT Startup destination, a Green Goa. We have to pool our available resources, we have to pool our available intelligence and create a Goa that is better than the one we inherited. A Better Goa is not a blueprint for tomorrow, it is only nudging Goa towards a certain direction and into taking those small

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steps towards the big plan today. As I put down my pen, I do so in the hope that this book will inspire Goans to aim for 'A Better Goa'.





What is it that Goa needs to sustain itself agriculturally, environmentally, economically? It is a plan, a blue print if you may, that will be chart the way forward.

The premise of **A Better Goa** is to give the State a vision that is practical and a plan that is eminently implementable.

Emerging out of his experiences and initiatives during his time in public life, some that have fructified, others that may have not, former Chief Minister and former Member of Parliament (Rajya Sabha), Luizinho Faleiro takes an impartial and holistic view of the path Goa is treading, as he recalls what has been done and suggests what can be done as Goa gallops to the future.

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