Sustainable Development of Developing Countries: A Holistic Socio-Economic-Political Approach

Dhanjoo Ghista and Siddhartha Sanyal
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Abstract: We define a functionally sustainable community as comprising of several cities with a large rural hinterland. In developing countries, sustainable development for cities and towns would be concerned with developing adequate standards of living based on the provision of community services and environmental quality, maintenance of trade linkages with their rural hinterland, and measures of social justice. On the other hand, sustainable development in the rural hinterland would have to deal with the means of generating revenue (by supplying their produce to the cities and other neighboring FSCs), so as to support their community services (such as healthcare, public transport, education, water supply, sanitation, electrical power) and sustain small businesses. In rural areas, there also needs to be professional opportunities and adequate level of education to service industries, so as to avoid migration to cities. The problems that FSC(s) need to address are: (i) Economic: financial capacity to afford community services, low affordability to pay for community services because of poverty, and encouraged to the private sector by way of facilitating their operations (export and import, etc); (ii) Social: growth of slums in cities because of rural-to-urban migration, poor public transport, provision of safe drinking water, low level of entertainment facilities (like parks) to enhance the quality-of-life, and exploitation of migrant labor from rural areas. The solutions for these urban-rural compounding problems are: (i) determination of appropriate size of FSC(s) (preferably based on cultural homogeneity), such that there is adequate rural hinterland size to cater to the needs of cities and thereby gather revenue for their own sustainability; (ii) adroit distribution of population in the rural areas, comprising of the revenue generating sector (about 40%), community service sector (about 40%), and small business sector (about 20%), such that the revenue brought into the rural townships by the revenue-generating sector is adequate to afford community services and sustain the small-business sector; (iii) adequate industrial development and a competent services sector in cities, so as to provide adequate community services and quality-of-life to the city dwellers; (iv) civilian economic democracy, such that community sectors' representatives in the legislature have responsibility to cater to the needs of their respective sectors.

Keywords: A Holistic Approach to Sustainable Development, Socio-Economic Democracy, Functionally Sustainable Communities at the Grass-roots Level, Legislative Members Being Elected by their Respective Association to Cater to their Interests, Self-reliant Socio-Economic Blocks, Regional Federation, World Government Parliament, Constitutional Human Rights

The Noble Concept of Harmonious Living

A FOUR THOUSAND year old Sanskrit shloka (verse), entitled 'Samgachchadhvam' from Rigveda, reads as follows:

Sam 'gacchadhvam' sam 'vadadhvam Let us move together, let us sing together; Sam 'vomamam 'msi ja 'nata'm let us come to know our minds together. Deva 'bha 'gam' yatha 'purve Let us share, like sages of the past, Sam 'ja 'na 'na'a 'upa 'sate so that all people together may enjoy the universe. Sama 'nii va a 'kutti Let us unite our intentions,

Sama 'na mastu vomano our minds are as one mind, Yatha 'vah susaha 'satii as we, to truly know one another, become one.

This lofty spiritual concept of living is verily the civilized way to live. Its inner meaning is: We all come from the Supreme Creator. Hence, as the sages and the saints in the past had enjoyed the collective wealth of the universe, let us, too, understand each other in the same way. Let our aspirations be the same, our hearts identical, and our thoughts emerge as one mind, so that we may live in harmony with all.

What a big contrast, to this above concept of enlightened way of living, has been our world scenario (at both socio-political and socio-economic levels), even in recent times over the past six decades. We will first briefly wander down this ignominious lane, in order to survey the gross abuse meted out to hu...
manity, and then conceptually outline the means and social structure for restoring human dignity.

But before moving on, let us first define as to what should constitute an enlightened way of life in the modern context. We would like to comprehensively define it in terms of a lifestyle where individuals are ensured of a dignified existence towards progress in all realms of human living, and the legislation of systems or processes that guarantees individuals the freedom of choice, in all aspects of their lives. The limits that will exist to this freedom, will be based on what is good for the majority, and will also be decided by the social majority.

The Current Socio-Economic-Political Setting

In the developing (previously colonized) countries, the socio-economic-political order has been characterized by (i) abject poverty, with the people often lacking even the basic amenities of living. About twenty percent of the world’s population is afflicted by poverty [1]; (ii) gross discrimination and social out-casting of groups of people due to their race, descent, caste, color, culture and poverty, (iii) abrogation of human-rights, the right to enlightened governance, and the right to expect and demand competent and transparent governance on the part of the governing politicians, (iv) de-culturisation, marginalisation and dis-empowerment of entire communities, along with ruthless stifling and crushing of dissident voices and movements for cultural rights and autonomic governance, (v) state-terrorism perpetrated in communist countries against their own people, (vi) terrorism by some freedom-demanding groups against governments and regimes considered by them to be incommodious and unsympathetic to their socio-economic predicaments, (vii) terrorist attacks on civilians by religious groups opposed to the situation of hegemony of world nations. The corresponding socio-economic order in the developing countries has been characterized by (i) the developed countries of the world taking advantage of cheap natural resources and labor of under-developed countries; (ii) professionals from under-developed and developing countries migrating to developed countries for better prospects of living standards. According to the John Hopkins Under-Graduate Research Journal “Currently there are nearly 140 million individuals living outside of their nations of origin, which is about 1 in 40 of the world’s population. This number includes legal immigrants such as temporary workers and other visa holders, illegal immigrants, refugees, and asylum seekers”[2]; (iii) multinationals operating in developing countries, while being unwilling to support local and indigenous technological incubation and training, so as to perpetrate dependency on them; (iv) currency manipulation leading to industrial and economic capsizing of emerging nations; (v) corruption and bleeding of wealth by the politicians of these countries. According to the African Center for economic growth, the financially well-off stratum of African Society has acquired wealth mostly with the help of connections to the state or through direct participation in governance related activities [3].

Thus although the overall levels of poverty are falling, the gap between the haves and have-nots is widening. This was supported by the World Bank Human Development report in 2003, which charted the poverty levels of various regions from 1990 till 2003. In the report it was established that 54 countries were poorer than what they were in 1990 [4]. Astonishingly, the richest 50 individuals in the world have a combined income greater than that of the poorest 416 million. The 2.5 million people living on less than $2 a day – 40% of the world’s population – receive only 5% of global income, while 54% of global income goes to the richest 10% of the world’s population [5]. Let us take the case of China. Although the standards of living have increased in the past two decades due to globalization and a revamp of the economic policies, only a particular segment of the population is benefiting from this largesse. The Human Development Index of the Guiyuan province in the west of China is 0.64, which is comparable to Namibia. Contrastingly the HDI of Shanghai is 0.89, roughly the same as that of Portugal [6]. One must remember that poverty is mostly relative. So unless, the affluence levels across society rise at the same pace, the contrast between the rich and poor will be more apparent. And this clearly is not happening in China, or in other rapidly developing countries such as India, Brazil and Indonesia.

In the past decade the Indian sub-continent has grown on an average at over 5 per cent per annum. The incidence of poverty on an average has fallen by 9 per cent in Bangladesh, 10 per cent in India, 11 per cent in Nepal and 6 per cent in Sri Lanka. These inequities highlight the fact that as many as 400 million people, out of a population of approximately 1.5 billion in the region, are living below the poverty line [6].

In our discussion, we refer to the “Third-World” as comprising of under-developed and poverty-stricken countries as well as developing countries and regions of the world. Under-developed to us are those regions where a majority of people has been historically living below the poverty line and economic growth is stagnated. When we refer to developing nations we would want to consider those regions or countries where a majority of the population have had poor living standards, but the current economic growth rates being experienced by those countries should theoretically at least enable its people to experience far superior living standards in the near fu-
ture. There is another and even more “deprived world”, comprising of all the discriminated peoples of the world (based on race and color, descent and caste, religion and poverty). We will term all of these discriminated people as the “Fourth-World”. Their plight is even more sorry than the Third-World people, because they are totally out-cast from the main-stream society, not allowed to mix freely, to use public means of education and medical-care, transport and worship. The Fourth-World exists in the form of caste-ism and racism, religious and ethnic intolerance and persecution. In fact the existence of the Fourth-world is usually precipitated by the Third-world.

When most of the once-colonized developing nations got their freedom, they were poverty-stricken. These third-world nations were uncertain as to which economic-political system to adopt. As capitalism was associated with the colonial countries, there was a tendency to quickly move away from it. This needed the rapid debunking of established (though not necessarily beneficial) policies. Socialism and communism seemed to be an ideal replacement to benefit the majority population namely the “employee-class” people. The irony was that the capitalism route involved re-inviting the foreigners in the form of multinational companies, while the communist route resulted in living in a regimented and terror-stricken society. The tragic end-result is that, even today, most of these former colonies are under-developed.

Neo Socio-Economic-Political System for Dignified Human Living

Herein, we will delineate some new concepts concerning socio-economic systems and electoral and governance systems, as well as the global political order. The first concept is that of autonomous functionally-sustainable communities or FSC(s) (within the provinces or states of a developing nation), so as to enable economically backward areas to constitute economically viable units. Geographical boundaries can form the initial basis of the formation of such communities, although in the long run we foresee them being developed on the basis of resource dependency and economic sustainability. It would also be helpful to the marginalized and segregated segments of the society to provide them their own FSC(s), in which they could live with dignity and contribute to (and in turn benefit from) their own economic development and destiny. One might argue that such communities already exist, but they are not sustainable and are also marginalized from the mainstream of society. But such developments are not universal. In fact, in most instances, they are devoid of the legal protection and social relevance which is fundamental to their ability to interact with other similar communities on a resource dependency and economic sustainability framework.

The second concept is that within the FSC(s), medium and large-scale corporations (such as industries and business groups,) would be organized as cooperatives, so that all the people in these corporations would be involved in sharing the wealth created by them, and thereby feel motivated to contribute to the performance of the corporations. In this socio-economic setup, termed as collective capitalism, there would be optimal utilization of human-potentialities, so as to foster development of all aspects of the economy (for instance knowledge-based economy, and not just capital and production based economy). There is a possibility that such a culture would stifle entrepreneurial attitude, since it is devoid of rewards and incentives. But we would disagree. The definition of rewards and incentives is based on today’s fractured and divided socio-economics. In a society in which there is a greater sense of equality, there would also be greater pursuits in ensuring the maintenance of that equality and collective prosperity. Then individuals would plausibly conceptualize benefits and rewards differently than their current materialistic association.

The FSC(s) would be organized into various sectors: comprising of associations (as, for example, teachers’ association, farmers’ association, legal-practice association, medical-practice association, industrial cooperatives’ association, and so on), agencies (such as for municipal, postal and police services), and councils (such as the housing and neighborhood councils and sports council). Each of these sectors of the community would elect the two most competent candidates, for the general public to then elect one of them to the SRC governance or legislature. By means of this electoral mechanism, in turn based on cooperative economic development, we are introducing the third concept of people-centric socio-economic democracy, involving (i) people’s participation in creating wealth and sharing it, as well as (ii) an electoral system to present to the public only the most capable and qualified persons (in all the functional activities of the community) to be elected to administer the various governance portfolios. We are advocating meritocracy and ability-based governance. This is to ensure that the core responsibility of any governance, that is to address particular issues, remain in sync with the individual’s abilities and more importantly is in tune with the needs of the group being represented.

A pertinent observation here would be the fact that in existing systems there is a possible correlation between size of countries (irrespective of the form of governance) and the disparity in income and wealth distribution of its populace. The main chal-
lence with large countries based on geographical divisions is that essentially the structure is federal. There is a constant tussle in terms of the autonomy levels that the different regions of the country demand and what the central federal government is willing to provide. The problem gets compounded with countries where the different regions have unequal reserves of natural resources and uneven distribution of population. Even with rapid development of communication infrastructures, accurate reports of human development and social requirements from far-flung areas take time to reach the federal headquarters. Thus, due to the uneven production and sustainability potential, the providing regions within a country feel unnecessarily obliged to assist the dependent regions.

For example, in India, the southern states with higher levels of literacy and a climate comparatively less prone to calamities, is growing at three percentage points faster than the Northern States. Whereas in Sri Lanka during the 1990s, consumption of the richest quintile increased by twenty-five times as compared to the poorest quintile [7]. Our model of a people-centric socio-economic democracy is relevant to address these anomalies and inequities. In our socio-economic democratic system, at the lowest level, the governance is based on meritocracy and economic dependency of professional groups, thus ensuring apt representation. Secondly, these independently sustainable groups or SRC(s) interact with each other based on potential mutual benefit, thus reducing obligatory responsibilities.

The next concept would be that, for all SRC(s), the constitution be designed to foster enlightened living for the SRC inhabitants. In this fourth concept, the constitution will involve human rights in the broadest terms, to even include the right to employment (as well as to ensure that the minimal wage has adequate purchasing capacity for dignified living), the right to freedom-of-expression of views concerning societal policies, as well as religious freedom and women’s rights to dignified living, education and employment. Equally important would be the constitutional ruling debarring terrorist acts, while also precluding an SRC government to imprison inhabitants suspected of being critical of the government and to detain them without proper cause and immediate trial.

A number of mutually compatible FSC(s) would constitute a self-reliant socio-economic bloc or SEB, depending on how they can interact in a mutually compatible fashion. These SEBs would be equivalent to the provinces of developing nations. However any two or more nations (of the world) would be free to form mutually benefiting self-reliant socio-economic blocs (SEB). The SEB(s) of a continent would be beneficially constituted into a Self-reliant Regional Federation (or union, similar to the European Union) thereby evolving the concept of enlightened living: all for one and one for all. This grouping caters to the spreading of socio-economic benefits more uniformly and fosters a more uniform quality of life concept.

The members of governance of the SEB government (and thereafter of the federal governments) would be elected by the SRC legislative members portfolio-wise. That is to say, all the SRCs’ legislators in charge, for instance, of the law portfolio would elect one of them to be the SEB law minister. The vacancy, thereby created at the SRC level, would be filled by the second candidate (of that SRC) Law-association who was not elected to governance by the general public. Likewise, the SEB governance members would elect the Federal governance members, and so on.

Finally, we arrive at the momentous sixth concept of a global-welfare catering World-government and Parliament (with its elected ministers representing all the self-reliant communities, socio-economic blocs, and regional federations). The prime role of the World Government Parliament would be to ensure local, regional and global socio-economic-political stability and physical security as well as the implementation of constitutional guarantees, so as to foster enlightened living for the people of all SRC(s) throughout the world.

The prime cause of neglect and suffering of people has long been due to the poor caliber of politicians, because of their incompetence and self-serving attitude. According to Dr. Joseph Abbey, the Executive Director of the Center for Policy Analysis in Ghana, “Corrupt politicians, all over the world tend to choose investment projects not on the basis of their intrinsic economic worth, but on the opportunity for bribes and kickbacks these projects present” [8]. This is particularly true for developing Third-World nations. This is why today and for all times, we have had a politicians-centered political order, whereas we should have a people-centered political order. Hence by means of this (above delineated) global political structure, we would develop such a neo-humanistic and people-centered global order (devoid of hegemonies), wherein the government and their governance members are dedicated to the welfare of all the SRC(s) and their people.

There is one common thread woven through all these concepts, to in fact integrate them under one neo-humanistic philosophy. If we are to serve and bring up the abused and down-trodden segments of humanity, we have to first respect them. All the prevalent socio-economic and electoral and governance systems are not conducive to bring and enable such modest, competent and noble persons into governance. This is why we have developed and
formulated the above-delineated progressive socio-economic and electoral and governance systems.

In a new neo-humanistic society, the persons empowered by the people to serve in government will not hold center-stage, but instead relate to what the common people feel and do. Hence, the persons elected to work in governance (at all levels) must themselves be neohumanists or at least neohumanism aspirants. Hence the final and most important concept is that of neohumanism as the principle and mission of the universal society.

**Terminating Exploitation and Social Discrimination**

We are also concerned with (i) terminating exploitation of deprived and lagging Third-world nations as well as the socially discriminated and outcast Fourth-World communities, and solutions for their becoming self-reliant; (ii) enabling discriminated marginalized and suppressed communities as well as socio-economically lagging communities to progress, to develop their full potential, and to shape their own destinies; and (iii) the creation of a neo-humanistic socio-economic-political order. The paper thereby addresses the psychology, economic system, governance system and the global political order for a neohumanistic global society.

It is to be noted that, this neo socio-economic-political re-organization and associated guidelines has relevance to both developing and developed regions of the world, as well as to both socially discriminated people and people enjoying social standing, because (as we have seen), their fates and economies are interlinked. So far, the First-World could develop at the expense of the Third-World. Similarly, so far the socially well-placed people (of developing countries) could disregard with impunity the miserable lot of their socially outcast fourth-world people, while making them operate the lowly-regarded community services (such as garbage and sewage collection). However, from here on, these discriminated people can have a unified coalition base to stand on, a constitutional safeguard to prevent atrocities meted out to them for centuries, as well as a legal appeal mechanism through a network of People’s Courts (working independently of the political structure).

Our progressive concept of collective capitalism, instituted at the FSC level, is particularly relevant and applicable to developing countries and discriminated social groups. However, our progressive-utilization socio-economic-political system will help to rescue societies from the clutches of pseudo-ideologies of communism and multi-polar capitalism as well as from inhuman racial and caste prejudices. The combination of collective capitalism, socio-economic democracy, and professional civilian governance (not involving political parties), will provide a cooperative and a conducive setup for all people to realize the full potential of human development.

**What Constitutes a Functionally Sustainable Community (FSC)**

A FSC would consist of several cities with a large rural hinterland. The cities and the rural hinterlands have separate problems. In developing countries, sustainable development for cities and towns is concerned with providing standards of living based on the provision of community services and environmental quality, maintenance of trade linkages with their rural hinterland, and measures of social justice. On the other hand, sustainable development in the rural hinterland has to deal with the means of generating revenue (by supplying their produce to the cities and other neighboring FSCs, so as to support their community services such as healthcare, public transport, education, water supply, sanitation, electrical power), and sustain small businesses. In rural areas, there also needs to be professional opportunities and adequate level of education to service industries, so as to avoid migration to cities.

The problems that FSC(s) need to address are:

1. Economic: financial capacity to afford community services, low affordability to pay for community services because of poverty, and encouragement to the private sector by ways of facilitating their operations (export and import, etc);
2. Social: growth of slums in cities because of rural-to-urban migration, poor public transport, provision of safe drinking water, low level of entertainment facilities (like parks) to enhance the quality-of-life; exploitation of migrant labor from rural areas.
3. Political Governance: enabling civilians-centered political governance, so that civilians hold center-stage and their problems of a better quality-of-life are addressed.

The solutions for these urban-rural compounding problems are:

1. Determination of appropriate size of FSCs (preferably based on cultural homogeneity) for people, such that there is adequate rural hinterland size to cater to the needs of cities and thereby gather revenue for their own sustainability.
2. Adroit distribution of population in the rural areas, comprising of the revenue generating sector (about 40%), community service sector
(about 40%), and small business sector, (about 20%), such that the revenue brought into the rural townships by the revenue-generating sector is adequate to afford community services and sustain the small-business sector.

3. Adequate industrial development and competent services sector in cities, so as to provide community services and an adequate quality-of-life to the city dwellers.

4. Economic democracy, devoid of political parties, such that all the community sector's representatives in the legislature have a responsibility to cater to the needs of their respective sectors.

Socio-Economic-Political Restructuring (to end Inequalities and Subjugation)

This paper offers guidelines for Third-World development, as well as solutions to global and regional socio-economic inequalities and subjugation, in terms of:

- neo socio-economic democratic electoral governance systems,
- economic development, combining knowledge-based approach with neohumanistic values,
- neo-global order, comprising of self-reliant economic zones, regional federations, and world government.

The current world order necessitates requirements such as (i) a new format of locally employable economic system (empowering local people) which can provide local and regional stability, as well as (ii) a new Global-Order for political equilibrium (devoid of hegemonism) and based on parity among nations. There is need for an independent UN, which is not pressurized by the affluent and/or militarily powerful (G-8) nations to either act or to not intervene in global and regional disputes, according to the interests of these influential nations. There is also the need for a World government that can provide a compassionate guiding-hand to struggling nations, while serving the individual and collective interests of all nations. This paper addressed these requirements by providing the charter and constitution role of functionally sustainable communities for grassroots democracy, within the benevolent political framework of a human-rights implementing world government.

For People's Empowerment

We are also introducing other concepts of people empowerment that are only being echoed. Some of these concepts are:

1. Natural resources to be harnessed primarily by the people-of-the-soil;
2. Non-privatization of natural resources of the land;
3. Co-operative economic development, with the generators of capital and revenue being also its recipients;
4. Economic democracy, to constitute the basis of political democracy;
5. The issues and needs of the community can be best addressed by elected competent representatives of the various sectors of the community (such as the educational, healthcare, judicial, manufacturing, energy, community-services, media sectors), and not by political parties having self-serving interests and agendas;
6. Since governments based on political-party systems can be bought off, hence a non-party based governance executive council would better look after the people's interests;
7. Functionally sustainable communities (based on the above principles) offer the best mechanism for addressing local needs, poverty eradication, collective generation and distribution of capital, local people's empowerment and their dignified living;
8. World trade and globalization can be locally, regionally and globally beneficial, based on (i) recognition of the empowerment of local people, and their involvement in natural-resources development, technologisation, and market for exports, (ii) imports to be only for items unavailable or for better-performing items, so that the local people do not get marginalized (iii) parity in remuneration for equivalent works and jobs across the globe.

We also need to address concepts and principles in many other domains. On the vexing issue of terrorism, religiosity and movements protesting against cultural and ideological domination, the paper proposes a forum for dialogue and socialization coupled with addressing of grievances, for 'dismantling' terrorism carried out by people who feel marginalized. Eventually, the objective would be to integrate these angered people into the mainstream of society, by redressing their grievances and even (in the case of big marginalized communities) giving them the responsibility to manage their habitats according to neo-humanistic principles.

In this format, the empowered marginalized automatically governed communities would have no choice but to co-operate (in a civilized manner) with their neighbors for survival. Indeed all, local, regional and global rivalries and power-struggles can be diffused by the promotion and glorification of the noble concept of co-operative-living at the local as well as regional and global levels, under the aegis of the
World government. This would indeed nullify the need for armamentariums and counter-intelligence agencies, which constitute a disgrace to the character and civilization of human beings.

A Template for Socio-Economic-Political Parity among Nations

Essentially this paper is offering a template for a neo-humanistic, non-hegemonic, local-to-global order, involving grass-roots and sustainable economic-development and political-governance by community representatives (working for the welfare of the community people). In catalyzing a new economic and political system, this paper can conceivably serve as a multi-stage road map to:

• self-reliant community development within Third-World countries to constitute strong economic blocs, as Stage 1; within each self-reliant community (SRC), the governance would be managed by elected representatives of all the community sectors (such as the education, healthcare, manufacturing, electrical power, energy, water-supply and sanitation, judicial and residential-housing sectors), thereby dispensing with the unwieldy and corrupt system of political parties (that only serve their own agendas);
• provide the mechanism and means for socio-economic-political stability of the under-served regions of the world, as Stage 2;
• help to bring together the so-called second-world and third-world socio-economic-political countries into a stable socio-economic-political block, to then serve as an economic-political parity and balance to the present eight-nation global hegemony, as Stage 3;
• and (in Stage 4) lead to the eventual and inevitable formation of World government, that will serve the individual and collective interests of all the communities of the world, without being dominated by a few economically and militarily powerful self-serving nations.

For Progressive Human Society

The socio-economic system as well as the political and governance system of a society impacts and influences all phases of human living. In this most important arena of human habitat, this paper charts an original course for:

• socially-marginalized fourth-world liberation and third-world development;
• providing a comprehensive charter of human rights for the benefit of the poor and backward, exploited and depressed communities of the world;
• the emergence of a progressive universal society;
• addressing the unfulfilled needs of the marginalized and voiceless, humiliated and silenced people of the world as well as of the affluent and idealistic, influential and social activities dedicated to the progress of human civilization.

In summary, we are delineating a neohumanistic global order, for promoting local and global socio-economic justice, progressive governance and a neo-concept of human rights, to serve as a beacon of ideological torchlight for an enlightened society, and (through it all) for sustainable peace.

References


About the Author

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Biography: In Leading Intellectuals of the world, 'published by American Biographical Institute, 2003) As R. S. Kye has written in the article "Professor with a mission": "[Dhanjoo Ghista] is a professor of professors, a world authority in biomedical engineering and physics, author or editor of 24 textbooks in subjects ranging
from Cardiovascular physics to Socio-economic Democracy and the World government (Collective capitalism, Depoertization, Human rights, Template for sustainable peace) and inventor of life-saving implant devices. A pioneer of research into the effect of space travel on astronauts, his work as the founder and leading exponent of the new science of societal engineering has received recognition from academics and institutions alike. Prof.Dr. Dhanjoo N. Ghista has published over 300 works in the fields of engineering, biomedicine, and the social sciences. He is also author/editor of over twenty books on biomedical engineering, engineering physiology, cardiovascular physics, orthopedic mechanics, medical and life physics, spinal injury biomedical engineering, and African development. He is a pioneer in the fields of biomedical engineering, healthcare engineering, and community development engineering and is committed to the advancement of Developing Countries. Currently professor at Nanyang Technological University, Prof.Dr. Ghista has previously worked as professor and chairman of biomedical engineering at Osmania University, professor and founding chairman of the Biophysics Department at the United Arab Emirates University in Al Ain, UAE. He earlier was professor of engineering, physics and medicine, as well as chairman of biomedical engineering, at McMaster University (in Canada).
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