

resort community, Celebration, all in Florida. These New Urbanism communities are in fact hideaways for the alienated elite. One must bring human scale and efficiency back to the city where the majority of people actually live and will congregate over the coming century. Intelligent Urbanism promotes the human dimension in a hierarchy of public and semi-public social places, as opposed to atomized and isolated private spaces. Elite enclaves are not the case studies for Intelligent Urbanism, or the models for towns like Samtse!

Architecture, campus planning and city planning, over the past half century, have all focused on isolated monuments on their own isolated plots, often enclosed in their own compound walls and behind lockable gates. The emphasis has been on artistic 'grand-standing' and institutional self-aggrandizement. Stunts like Potsdam Platz in Berlin and the Guggenheim Museum in Bilbao, which are over-scaled and grandiose, detract from the human scale. Largeness, grandness and technological feats have been the new trend, where the goal is often to amaze the public, rather than to create humble, walkable human experiences! This anti-people approach to design is anathema to Intelligent Urbanism.

Intelligent Urbanism promotes the scale of the pedestrian moving on the pathway, as opposed to the scale of the automobile on the expressway. Intelligent Urbanism promotes the ground plan of imageable precincts, as opposed to the imagery of façades and the monumentality of the section.

While city planners talk about mixed land uses, they are still merely placing chunks of mono-functional blocks of activity adjacent to one another, on a chessboard-like plan. Each institution, corporation and housing block has their own lockable and secure enclave, surrounded by roads! This pattern can already be seen in pockets of Bhutan. "Gated communities," fenced in with guards at the locked entry, divide urban society into defined gettos. This is anathema to the PIU!

Intelligent Urbanism conceives of mixing a variety of uses within a rich, integrated urban fabric. This brings into play mechanisms like "the eyes of the street," round the clock activities and a more compact networking of services and infrastructure. It greatly enhances accessibility. It brings people together.

In the contemporary city, the automobile is the only link between activities; between work, school and house; between individuals and group interaction. Intelligent Urbanism removes this artificial barrier and promotes face-to-face contact. The automobile, single use "zoning" and the construction of public structures in isolated compounds, all deteriorate the human condition and the human scale of the city. The relegation of "good practices" to isolated enclaves of the rich, undermines the very concept of the community!

This trend can be overcome by developing pedestrian circulation networks along streets and open spaces that link local destinations. In Samtse shops, amenities, day-care, vegetable

markets and basic social services will be clustered around public transport stops and at a walkable distance from work places, public institutions, high and medium-density residential areas. Public spaces will be integrated into residential, work, entertainment and commercial areas. Social activities and public buildings will orient onto public open spaces. These will be the interchange sites for people on the move, where one can also revert into the realm of "slowness," of community life and of human interaction. These will be the interchange nodes at modal split points...where pedestrians, cyclists, taxi passengers, bus passengers and light rail passengers alight, run errands, stop to rejuvenate and sip coffee.

Human scale can be achieved through building masses that "step down" to human scale open spaces; by using arcades and pavilions as buffers to large masses; by intermixing open spaces and built masses sensitively; by using anthropometric proportions and natural materials. Traditional building precedents often carry within them a human scale language, from which a contemporary urban fabric may evolve. The desecration of Norzin Lam in Thimphu, where a once pleasant pedestrian scale street has been turned into a row of monstrosities, is an excellent example of what not to do in Samtse.

The focus of Intelligent Urbanism is the ground plan and the landscape plan. Human movement and interaction along stems, at crossing nodes, at interactive hubs and within vibrant urban cores are the central concern. We have a lot to learn from Transit Oriented Development, but our goal is not merely to replace the automobile, nor just to balance it. These are mundane "aims" of planning, which we all are assumed to seek out in every design and urban configuration. Our goal in planning Samtse is to enrich the human condition and enhance the realm of human possibilities. The town must link together a matrix of human scales and human possibilities. It must create activity nodes, which promote interaction, communication, discussion, and the exchange of ideas, play, fun and romance! This is the essence of Intelligent Urbanism.

### 1.2.7 Principle Seven : Opportunity Matrix

Towns like Samtse can be engines of economic growth. This is particularly so with regard to Gross National Product (GNP) and balance of trade. More significantly this will be true for the individuals who settle in Samtse in the future. Moreover, towns like Samtse are places where individuals can increase their knowledge, skills and sensitivities. Towns provide access to health care and preventive medicine. They provide a great umbrella of services under which the individual can leave aside the struggle for survival, and get on with the finer things of life.

Samtse can provide a range of services and facilities, to its citizens, whose realization in villages are the all-consuming functions of rural life. Potable water; sewage disposal; energy for cooking, heating and lighting are all piped and wired in; solid waste disposal and storm water drainage are taken for granted. Developed towns offer access through roads, buses, telephones and the internet. The peace and security provided by effective policing systems,



and the courts of law, are just assumed to be there in mature towns. Then there are the schools, the recreation facilities, the health services and a myriad of professional services offered in the town market place. There are snack shops, fast food joints, restaurants, and grocery stores with food substitutes, pre-cooked and processed foods and ready-made meals. Cooking has become a hobby in towns!

Future citizens of Samtse will be free from the tyrannies of disease, crime, harassment, exploitation, isolation, hunger, ignorance, and drudgery! While the rural woman is collecting firewood, fetching water, growing vegetables and nurturing back-yard poultry, washing clothes, cooking and boiling water; her urban sister may be doing a Ph.D. on gender in rural development! All of this leaves free time to develop one's own human resources, to pursue business, or gainful employment. One can pursue the arts, community work, politics and social work. This is all a result of the surety and security provided by the town government. Samtse must develop into an opportunity system! It will offer a matrix of opportunities.

Yet these opportunities are not equally distributed. Security, health care, education, shelter, hygiene, and most of all employment, are not equally accessible.

Intelligent Urbanism views the city as an opportunity system. It sees Service Centers like Samtse as playing an equalizing role in the future, allowing citizens to grow according to their own essential capabilities and efforts. If a developed town is an institution, which generates opportunities, Intelligent Urbanism promotes the concept of equal access to opportunities within the urban system. Samtse as a Service Center and anchor of a Special Economic Zone spread between Sipsu and Phuentsholing can generate as many jobs per hectare as it can arcanut trees! This vast opportunity must not be squandered! There must be a policy combining investments, regulations and incentives attracting MNCs to invest in capital intensive technology based industry, providing a high end employment market for the country's youth.

Intelligent Urbanism promotes a guaranteed access to education, health care, police protection, justice before the law, potable water, and a range of basic services. Perhaps this principle, more than any other, separates Intelligent Urbanism away from other elitist, efficiency oriented urban charters and regimes.

Intelligent Urbanism does not say every household in Samtse will stay in the same house type, or travel in the same vehicle, or consume the same amount of electricity. It says every citizen in Samtse will have opportunities, and access to shelter, to transport, to electricity, to potable water, to sanitation, to waste disposal, to the public domain, to knowledge, education, and to basic health care.

Intelligent Urbanism recognizes the existence of poverty, of ignorance, of ill health, of malnutrition, of low skills, of gender bias and ignorance of the urban system itself. Intelligent

Urbanism is courageous in confronting these forms of inequality, and backlogs in social and economic development. Intelligent Urbanism sees an urban plan, not only as a physical plan, but also as a social plan and as an economic plan! This economic plan is not conceived for the tiny population living in the area, but for the country as a whole!

The ramifications of this understanding are that the people living in Samtse will not experience urban development in "standard doses". People may be born equal, but they grow inequitably! An important role of Service Centers like Samtse is to provide a variety of paths and channels for each individual to set right their own future, against the inequity of the past. This is a more salient aspect of a free society, than even voting rights. Access to opportunity is the essence of self-liberation and human development. The concept is to open channels in this Special Economic Zone, which are large enough to cater to the entire country, and not just the local population.

There will be a variety of problems faced by urbanites and they need a variety of opportunity channels for resolution. If there are ten problem areas where people are facing stresses, like health, shelter, food, education, recreation, transport, etc., there must be a variety of opportunities through which individuals and households can resolve each of these stresses. If this opportunity matrix is understood and responded to, the city is truly functioning as an opportunity matrix. For example, opportunities for shelter could be through the channels of lodges, rented rooms, studio apartments, apartments and houses. It could be through the channel of ownership. It could be through opportunities for self-help, or incremental housing. It could be through the up-gradation of "bagos" and slums. It could be through a strong rental market!

Intelligent Urbanism promotes a wide range of solutions, where any stress is felt. It therefore promotes a range of problem statements, options, and variable solutions to urban stresses.

Intelligent Urbanism sees Growth Centers as 'people processes' and not as "building objects". Good urban plans facilitate those processes and do not place barriers before them. For example, it does not judge a "bago" as a blight on society. It sees the possibility that such a settlement may be an "opportunity channel" for entry into the town! Such a settlement may be the only affordable shelter, within easy access to employment and education, for a new immigrant household in the town. If the plan ignores, or destroys such settlements, it is creating a city of barriers and despair wherein a poor family, offering a good service to the town, is deigned a modicum of basic needs for survival. Alternatively, if the urban plan recognizes that the bago is a mechanism for self development, a spring-board from which children have access to education, a place which can be up-graded with potable water, basic sanitary facilities, street lights and paving...then it is a plan for opportunity. Intelligent Urbanism believes that there are slums of hope and slums of despair. It promotes slums of hope, which contribute, not only to individual opportunities, but also to nation building. What are presently under serviced, unhygienic slums could be well planned site and service estates.



Table 1.1 : Opportunity Matrix

OPPORTUNITY MATRIX										
		LOW END ..... STRESS REDUCING OPPORTUNITY OPTIONS ..... HIGH END								
		1	2	3	4	5	6	7	8	9
STRESSES	Food	Scrap Food / Junk food	Cooking for Self	Road-side Stalls / Common Tiffin	Mess	Shared Kitchen	Kitchen Comer in Room	Family Kitchen	Cook Prepares	Restaurants
	Shelter	Street Sleeping	Rented / Shared Bagos	Shared Rooms / Lodges	Rented Houses	Shared Houses	Rented Apartments	Apartment Ownership	Rented Cottages and Bungalows	Owned Bungalows and Houses
	Clothing	Discarded	Self Made / Used	Local Tailors	Tailors	Readymade	Branded	Imported Cloth	Boutique, Imports	Fashion Designers
	Education	Street Learning / Child Care by Children	Maintained at Work Site / Play Learning	Adult, Elderly and Infomal Education	Creche / Nursery / Pre-Primary Schooling	Primary / Secondary Schooling	Higher Secondary	Local Colleges / Vocational Technical courses	Indian University for Under-Graduation and Post-Graduation	Foreign University for Higher Education
	Transport	Walking	Bicycles	Hitching Trucks	Two wheelers / Taxis / Intra-City Buses	Inter-City Buses	Cars / Trains	Regional Buses / Flights	Regional Flights	International Flights
	Health	Superstitious Rituals	Traditional / Local Medicine people	Trained Medical personel / Community Health Centers	Primary Health Units / Paramedics	Neighborhood Clinics / Dispensaries	Regional Facilities	Thimphu Hospital	Indian Options	Foreign Options
	Recreation	Inebriants / Domas / Bidis	Traditional Sports Activities / Inebriants	Newspapers / Radio / T.V.	Gardens / Videos / Films	Parks / Sports / Cafes / Bars	Clubs / Discos / Gymnasiums / Shopping	Parties / Local Tours / In-Country Tours	Banquettes / India Tours / Regional Tours	Foreign Tours
	Savings / Debts	Debts to Landlords / Employers	Debts to Friends / Family	Debts to Money Lenders	Debts Money Lenders	Debts to Bishis	Provident Fund / Gambling / Insurance / Bank Deposits	Banks / Provident and Mutual Funds	Shares	Financial Institutions / Equities / Businesses

**Note :** 1. Location of a " Stress Reducing Option " at the low end or at the high end does not necessarily imply " Better " or " Worse ", though that may be the case.  
 2. A "Stress Reduction Option" at the low end, like "walking," may operate at any higher level, while a higher end option may not operate at a lower level.



The opportunity matrix must also respond to young professionals, to skilled, well-paid blue collar workers, to the upper middle class and to well-to-do entrepreneurs. If a range of needs, of “abilities to pay,” of locational requirements and of levels of development of shelter is addressed, then opportunities are being created.

Intelligent Urbanism believes that private enterprise is the logical provider of opportunities, but that alone it will not be just or effective. The regime of land, left to market forces, will create an exclusive, dysfunctional society. Intelligent Urbanism believes that there is an essential role for the civil society to intervene in the opportunity matrix of the town. Intelligent Urbanism sees a role for the government in creating an equitable “playing field” for all the youngsters entering the game of life!

Intelligent Urbanism promotes opportunities through access to:

- Basic and primary education, skill development and knowledge about the modern world;
- Basic health care, potable water, solid waste disposal, sewerage management and hygiene;
- Urban facilities like storm drainage, street lights, roads and footpaths;
- Recreation, sports and entertainment;
- Transport, energy, communications;
- Public participation and debate;
- Finance and investment institutions and instruments;
- Land and/or built-up space where goods and services can be produced;
- Economic infrastructure;
- Economic incentives through low interest loans, subsidized training, tax holidays and access to productive inputs;
- Social, economic and environmental regulation;
- Law, order and justice; and,
- Public domains, public transport and public information.

Intelligent Urbanism provides a wide range of zones, districts and precincts where activities and functions can occur without detracting from one another.

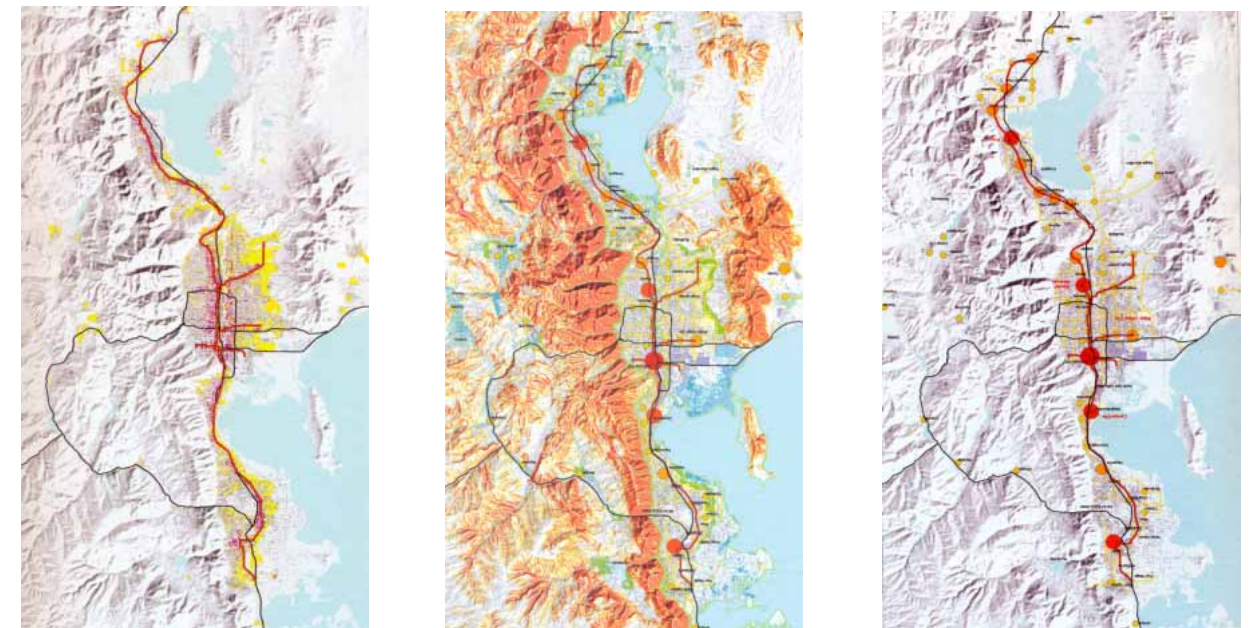
Intelligent Urbanism believes that enterprise can only flourish where a public framework provides opportunities for enterprise. This system of opportunities operates through public investments in economic and social infrastructure; through incentives in the form of appropriate finance, tax inducements, subsidized skill development for workers, and: regulations which protect the environment, safety, hygiene and health. It is through government regulations that private investment can be protected from fraud. It is through government regulation that an equitable “playing field” for free enterprise can be made to

function! Wherever a “social net” has been created to catch people falling into poverty, Quality of Life indicators are high. Dynamic capitalist centers like Singapore are supported by strong public housing programs and excellent social services!

Intelligent Urbanism understands that towns like Samtse are not just objects, or a group of objects, that support human endeavors. The town is an institution, which promotes development processes and opportunities. The town is an economic engine which drives employment, productivity, profits, revenue, positive trade balance and national balance.

### 1.2.8 Principle Eight : Regional Integration

Intelligent Urbanism sees the towns like Samtse as part of a larger social, economic and geographical organism...the Phuentsholing -Samtse-Sipsu region. Likewise, it sees the region as an integral part of Samtse. Moreover it sees this micro-economic region as part of the larger region of Western Bhutan, and like a set of Russian dolls, this larger region of Western Bhutan is part of the national economic system. Planning of the Samtse Structure Plan, and its hinterland, is a single holistic process. Intelligent Urbanism respects the fact that a vibrant town exerts an influence over its immediate surrounds. It can catalyze upliftment, or deteriorate the hinterland that supplies its raw materials, food, workers, recreational areas and environmental cushion. Town growth and development into a Growth Center is an organic part of a much larger regional organism. In Samtse, it includes not only the Sipsu-Samtse economic region, but also the catchment area of lower Western Bhutan for which Samtse is both the port of entry and the Service Center. If one does not recognize growth as a regional phenomenon, then development will play a hop-scotch game of moving just a little along the terai, or up the hills, keeping beyond the path of the town’s boundaries, development regulations and of the urban tax regime. If one does not recognize the wholeness of the town and its region, the town will ruthlessly exploit its surrounds, denuding the hills of trees, quarrying out hillsides for stone, grazing off the biomass for milk and meat.

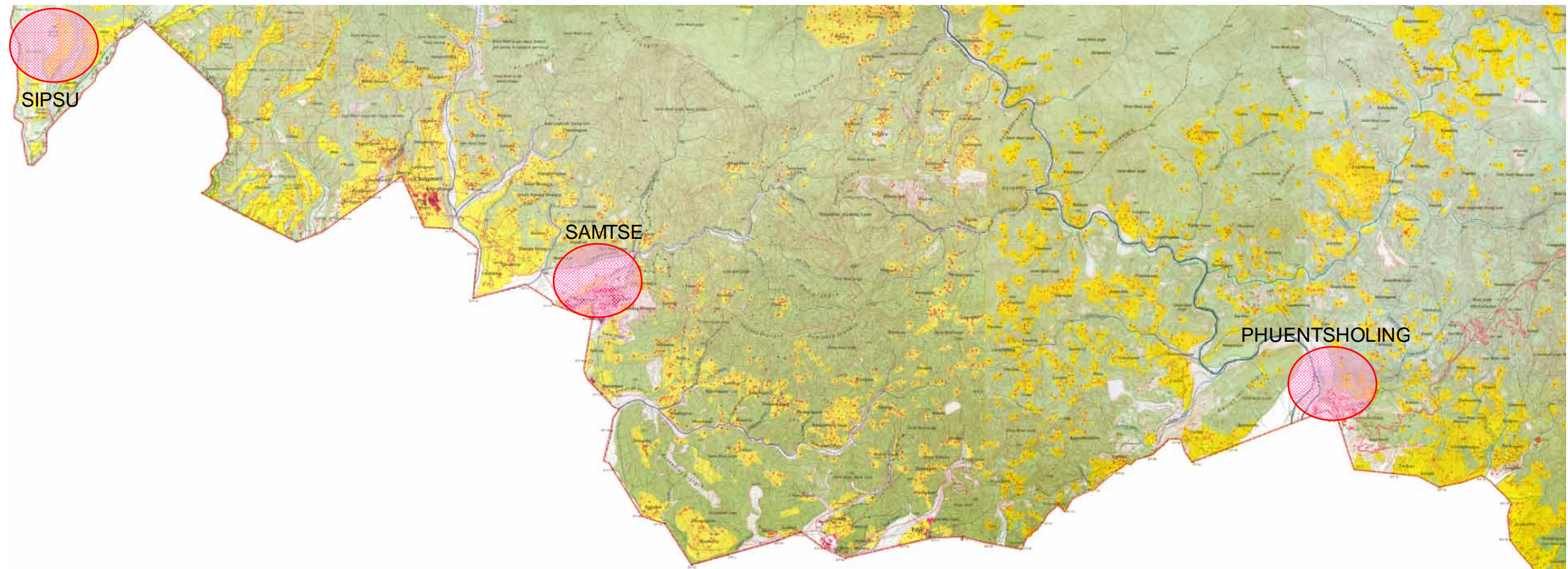


Moreover, the Phuentsholing -Samtse-Sipsu Special Economic Zone must be envisioned as an economic “Power House” igniting the vast potentials of Bhutan’s people, natural resources and comparative advantages.

Socially the Samtse region may be defined as the catchment area from which employees and students commute into the town on a daily basis. It is the catchment area from which people choose to visit one town, as opposed to another, for retail shopping and entertainment. Economically it may be seen as the zone from which perishable foods, firewood and building materials supply the town. The economic region can also be defined as the area managed by exchanges in the town. Telephone calls to and within the Samtse region go through the town’s telephone exchange; post goes through the town’s post office; money transfers go through the town’s financial institutions and internet data passes electronically through the town’s servers. The area over which “city exchanges” disperse matter can well be called the town’s economic hinterland or region. Usually the region includes dormitory communities, airports, water reservoirs, hydro facilities, out-of-doors recreation and other infrastructure that serves the town. Intelligent Urbanism sees the integrated planning of these services and facilities as part of the town planning process. There must be an urban control and development zone which reaches well beyond municipal boundaries.

Intelligent Urbanism understands that the social and economic region linked to Samtse also has a physical form, or a geographic character. This character may be the river that connects mountains to the plains, or a river valley and the hill forms framing it. In Samtse it is the unique geo-climatic zone where the great Himalayas meet the Indian plains.

A hierarchy of watersheds gives pattern to the geographic character. Forest ranges, fauna and avifauna habitats are set within such regions and are connected by natural corridors for movement and cross-fertilization. Within this larger, environmental scenario, one must conceptualize urbanism in terms of watersheds, subterranean aquifer systems, and other natural systems that operate across the entire region. Economic infrastructure, such as roads, hydro basins, irrigation channels, water reservoirs and related distribution networks usually follow the terrain of the regional geography. The region’s geographic portals, and lines of control, may also define defense and security systems deployment.



Phuentsholing -Samtse- Sipsu Urban Development Corridor



Intelligent Urbanism recognizes that there is always a spillover of population from the town into the region, and that population in the region commutes into the town for work, shopping, entertainment, health care and education. With thoughtful planning the Samtse region can take pressure off of the town. Traditional and new settlements within the urban region can be enhanced and densified to house additional urban households. There are many activities within the town, which are growing and are incompatible with urban habitat. Large, noisy and polluting workshops and manufacturing units are amongst these. In this way the proposed industrial development estate is outside of central Samtse, on the road to Sipsu. This will affect the specifications of the Sipsu to Samtse road and the placement of workers and managers' housing estates within the region.

Large wholesale markets, storage sheds, vehicular maintenance garages, and wood working mills need to be housed outside of the town's limits in their own satellite enclaves. These also must be on the road linking Sipsu to Samtse, or on the new Sipsu-Daipham National Highway to Phuentsholing.

Samtse can remain an "economic and social backwater", or become part of Bhutan's industrial heartland! It can be our very own Wild West or 'Bihar', or it can become our Singapore or Ruhr Valley! If well planned, Samtse can create new dignified employment for youth from all regions of Bhutan.

Intelligent Urbanism is not planning for the present; it is planning for subsequent decades, centuries and forever. Intelligent Urbanism is futuristic, in that it must forecast the scenarios to come, within Samtse's own boundaries, and the boundaries of the distant future.

**1.2.9 Principle Nine : Balanced Movement**

Intelligent Urbanism sees movement and transport in the Samtse, and in the Phuentsholing-Sipsu region, as a balanced group of systems that are integrated with one another. These overlapping systems, or modes of transit, include pedestrians, cycles, automobiles and buses. In the far distant future trams, or a light rail system, may be envisioned. Part of the strategy is to leave enough space along corridors to accommodate higher levels of technology when the need arises.

Intelligent Urbanism sees the interchanges between transit systems (at what are known as places of modal split), as the public domains in which intense activities must occur. These are high-density areas with compact urban fabrics of built form.

Intelligent Urbanism sees the automobile as a permanent feature of the urban pattern in Samtse, but as only one of the modes of movement! Hidden subsidies on energy, roads and

parking, or on the interests charged to purchase automobiles, should not give an undue advantage to the use of vehicles.

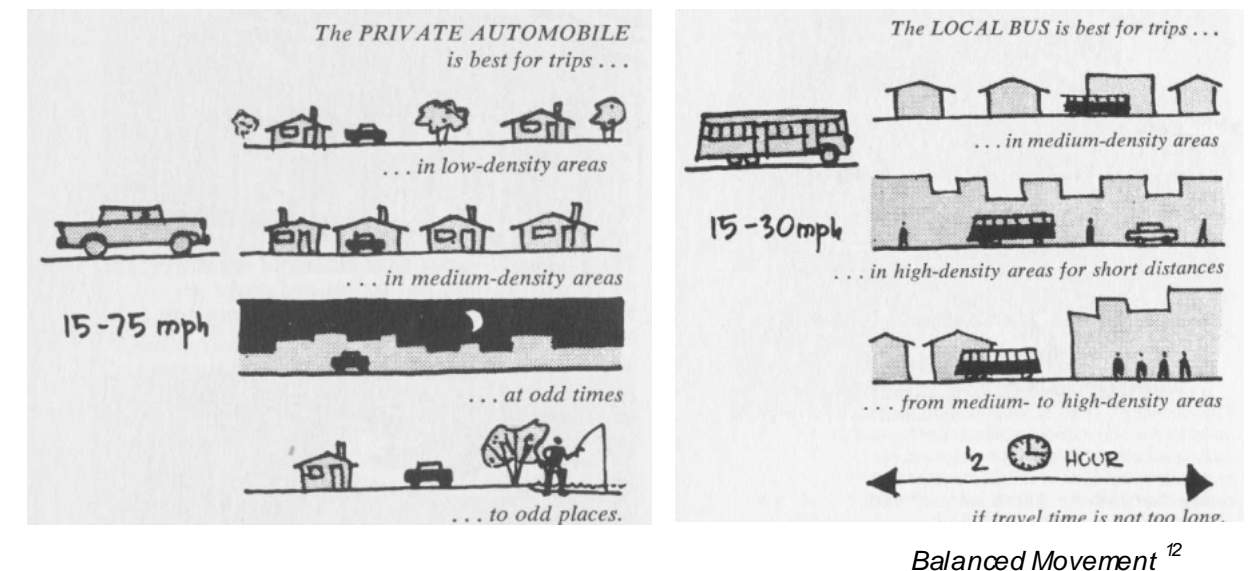
Intelligent Urbanism sees a grid of roads serving automobiles, instead of a hierarchy of lanes, arteries and expressways, which funnel traffic into congested collection roads. Dead ends, large gated communities, cul-de-sacs and "feeder roads," are seen as bad practices, as they are socially divisive and slow down vehicular circulation, which is concentrated at the junctions where the larger roads in the hierarchy meet.

Intelligent Urbanism promotes service roads off of the main artery grid and into pedestrian dominated vehicular lanes. Here, parking along streets, with planting between walkways act as buffers between pedestrians and vehicular movement.

Intelligent Urbanism sees rapid buses, travelling in dedicated express lanes, as the most promising and cost effective future solution for smaller towns and regions. In larger regions, a light rail system can ultimately link rapid bus routes and onwards integrating walkable enclaves.

Intelligent Urbanism recognizes that even in contexts where there are comparatively high automobile ownership levels, access to these vehicles, even within the same households, may be low. Wives and children must seek other modes of travel. Students, skilled workers, domestic servants and young professionals---just to name a few---need access to alternative means of travel.

For all of these integrated modes of transit to operate in a balanced manner in Samtse's future urban and regional setting it means the pattern must be planned as high-density, compact centers, linked together along a transit corridor. Now is the time to plan for the future!



Societies that have depended on the mono-system of the automobile never seem to move ahead of congestion and the insatiable demand for new roads, widened roads and improved



roads. Intelligent Urbanism says a town or a city cannot build its way out of congestion within a one-mode system of transport. A balanced and integrated system of walkable pedestrian communities, public transit along a network of compact centers, connected to walkable pedestrian communities is proposed in Samtse. Vehicles should ply on open-ended grids of streets and parked automobiles should be used as buffers between the dangerous road and the safe footpath. The urban region is an integral part of this concept and is integrated via a corridor, or intersecting linear channels, of rapid, public transit.

### 1.2.10 Principle Ten : Institutional Integrity

Intelligent Urbanism recognizes that none of the principles, or good practices, it promotes can be implemented unless there is a strong and rational institutional framework to define, channel and legalize urban development, in all of its aspects. While the present size and scale of Samtse does not justify a full municipal corporation, the present set of sector specialists is too limited, both in their size and in their range of professional qualifications. These dedicated professionals need a range of support to be truly effective.

Intelligent Urbanism envisions the institutional framework as being very clear about the rules and regulations it sponsors and that those using discretion in implementing these measures must do so in a totally open, recorded and transparent manner. This becomes very difficult in a working environment where the local staff is over-burdened and works on a crises management footing, rather than an organized professional footing.

Intelligent Urbanism proposes that Samtse's Development Management System must temper its development and that of the urban region also. This would lay out all of the procedures, through which all proposals would be submitted and assessed. It would clearly define all of the parameters that are being considered and provide the reasons and the conditions on which proposals will be assessed.

Intelligent Urbanism facilitates the public in carrying out their honest objectives. It does not regulate and control the public. It attempts to reduce the requirements, steps and documentation required for citizens to process their proposals.

Intelligent Urbanism is also promotive in furthering the interests of the public in their genuine utilization of opportunities. It promotes site and services schemes for households who can construct their own houses. It promotes up-gradation of settlements with inadequate basic services. It promotes innovative financing to a range of actors who can contribute to Samtse's urban development. Intelligent Urbanism promotes a limited role for government, for example in "packaging" large-scale urban development schemes, so that the private sector is promoted to actually build and market urban projects, which were previously built by the government.

Intelligent Urbanism is not naïve! It recognizes that there are few developers and promoters in Samtse. There may be a modicum of quality commitment now. In the future, those who have no long term commitment to their own constructions will be the majority, and these "developers" only concern will be to hand over a dwelling, gain their profit and move on to the next project. For these players it is essential to have Development Control Regulations assuring the public that the products in which they invest are safe, hygienic, orderly, durable and efficient. For the discerning citizen, such rules also lay out the civil understanding by which a complex society agrees to live together.

There must be an up-dated and continuously managed cadastral system in Samtse wherein all of the lands in the jurisdiction of the town are demarcated, surveyed, characterized and archived, registering their legal owners, their legal uses, and the tax defaults against them, if any.

The institutional framework can only operate where there is a Structure Plan, or other document that defines how the land will be used, serviced, and accessed. The Samtse Structure Plan will tell landowners and promoters what the parameters of development are, which assures that their immediate investments are secure, and that the returns and use of such efforts are predictable. The Samtse Structure Plan provides owners and investors alike, with predictable future scenarios. This is essential for Samtse's economy to grow and for investors to become active. Samtse requires efficient patterns for its main infrastructure systems and utilities. Land needs to be used in a judicious manner, organizing complimentary functions and activities into compact, mixed use precincts and separating out non-compatible uses into their own precincts. In a similar manner, it is only through a plan that heritage sites and the environment can be legally protected. Samtse's public assets in the form of nature reserves, religious places, heritage sites and open space systems are designated in a legal plan.

Intelligent Urbanism proposes that the city of Samtse, and its surrounding region, be regulated by a Structure Plan which acts as a legal instrument to rationally guide the growth, development and enhancement of the city.

There must be a system of participation by the "stake holders" in the preparation of plans. Public meetings, hearings of objections and transparent processes of addressing objections, must be institutionalized. Intelligent Urbanism promotes public participation.

Two Local Area Plans will be prepared in Samtse, which address local issues and take into account local views and sentiments regarding plan objectives, configurations, standards and patterns. Such plans layout the site plots showing the roads, public open spaces, amenities areas and conservation sites. Land Pooling assures that all of those who benefit from the provision of public infrastructure and amenities equally contribute, and that a few individuals do not suffer from reservations in the plan.



There must be an equivalent system of Floor Area Ratios to assure that the land and the services are not over pressured. No single plot owner should grab more than their fair share of the supporting access roads, amenities and utilities that service all of the sites in Samtse. Floor Area Ratios temper this relationship and equalize the manner in which public services are consumed. Plot coverage and height restrictions are easy to understand but limit architectural expression to boxes of one floor placed over the one below. Intelligent Urbanism supports the use of Architectural Guidelines where there is a tradition to preserve and where precedents can be used to specify architectural elements, motifs and language, in a manner, which reinforces a cultural tradition that is meaningful. Building designs must respect traditional elements, even though the components may vary greatly to integrate contemporary functions. Architectural Guidelines are required to assure harmony and continuity of building proportions, scale, color, patterns, motifs, materials and facades.

Intelligent Urbanism insists on safety, hygiene, durability and utility in the design and construction of buildings. Where large numbers of people gather, in schools and hospitals, which may become emergency shelters in disasters, special care must be exercised. The Bhutan Building Code is the reasonable instrument to achieve these aims, in the public's interest.

Those who design buildings in Samtse must be professionally qualified architects; those who design the structures (especially of structures more than ground plus one level) must be professionally qualified structural engineers; those who build buildings must be qualified civil engineers; and, those who supervise and control construction must be qualified construction managers. Intelligent Urbanism promotes professionalism in the city-making process. While promoting professionalism, Intelligent Urbanism proposes that this not become a barrier in the development process. Small structures, low structures, and humble structures in Samtse, which do not house many people, can be self designed and constructed by the inhabitants themselves. There must be recognized Professional Accrediting Boards, or Professional Bodies, to see that urban development employs adequate technical competence.

Intelligent Urbanism insists that towns, local authorities, regional development commissions and planning agencies be professionally managed. Town Managers can be hired to manage the delivery of services, the planning and management of planned development, the maintenance of utilities and the creation of amenities. This must be institutionalized. In a town like Samtse, this transformation must precede development, not follow it!

#### ILLUSTRATION CREDITS FOR CHAPTER 1.0

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