Shifting the Paradigm: Rethinking Urban Planning and Policy in Megacity Settlements Using the United States Military Base Structure as Model

DRURA PARRISH
Savannah College of Art and Design

MEGACITY POPULATION GROWTH AND ASSOCIATED PROBLEMS

The past 100 years has seen an increased shift of rural populations to urban centers. At the dawn of the twentieth century, 10% of the world's population lived in cities. This number increased to 50% by 2000. Projections show the possibility of over 5 billion city inhabitants in 2030, which will account for 60% of the world's population.[1]

The shift from rural to urban life, plus the natural growth rate in cities, has aided in the creation of the "megacity." Typically, these cities have at least 10 million inhabitants. In 1975, there were only 5 megacities in the world. Today, however, numbers have jumped to 19 and counting (Fig. 1). In 2015, the number of megacities is expected to be 23. Additionally, over 564 cities are expected to exceed 1 million inhabitants.[2]

The annual growth rate for developing countries (2.3%) is much higher than that of developed countries (.4%).[3] Many persons in developing countries are inundated with problems that draw them to cities. In countries such as Mexico, deteriorating rural economies have led people to larger centers, such as Mexico City. Wars have led rural villagers in Nigeria to seek harbor in Lagos. Civil unrest has led people to find safety and security in established urban centers. For most of these cities, city sprawl absorbs rural inhabitants.

New Populations in some major cities represent the growing majority of city inhabitants. Slum and squatter settlements in some cities are actually as large as or larger than the existing population of the city (Fig. 2). These are neither suburbs, nor edge cities; they exist as stepping stones to harbor new immigrants. They exist as dependent children of the city with

MEGACITIES

Cities with Populations of 10 Million or More Inhabitants

Population in Millions

1975		2000		2015	
Tokyo	19.8	Tokyo	26.4	Tokyo	26.4
New York	15.9	Mexico City	18.1	Bombay	26.1
Shanghai	11.4	Bombay	18.1	Lagos	23.2
Mexico City	11.2	São Paulo	17.8	Dhaka	21.1
São Paulo	10.0	Shanghai	17.0	São Paulo	20.4
		New York	16.6	Karachi	19.2
		Lagos	13.4	Mexico City	19.2
		Los Angeles	13.1	Shanghai	19.1
		Calcutta	12.9	New York	17.4
		Buenos Aires	12.6	Jakarta	17.3
		Dhaka	12.3	Calcutta	17.3
		Karachi	11.8	Delhi	16.8
		Delhi	11.7	Metro Manila	14.8
		Jakarta	11.0	Los Angeles	14.1
		Osaka	11.0	Buenos Aires	14.1
		Metro Manila	10.9	Cairo	13.8
		Beijing	10.8	Istanbul	12.5
		Rio de Janeiro	10.6	Beijing	12.3
		Cairo	10.6	Rio de Janeiro	11.9
				Osaka	11.0
				Tianjin	10.7
				Hyderabad	10.5
				Bangkok	10.1

Source: UN Population Division, March 2000

Fig. 1.

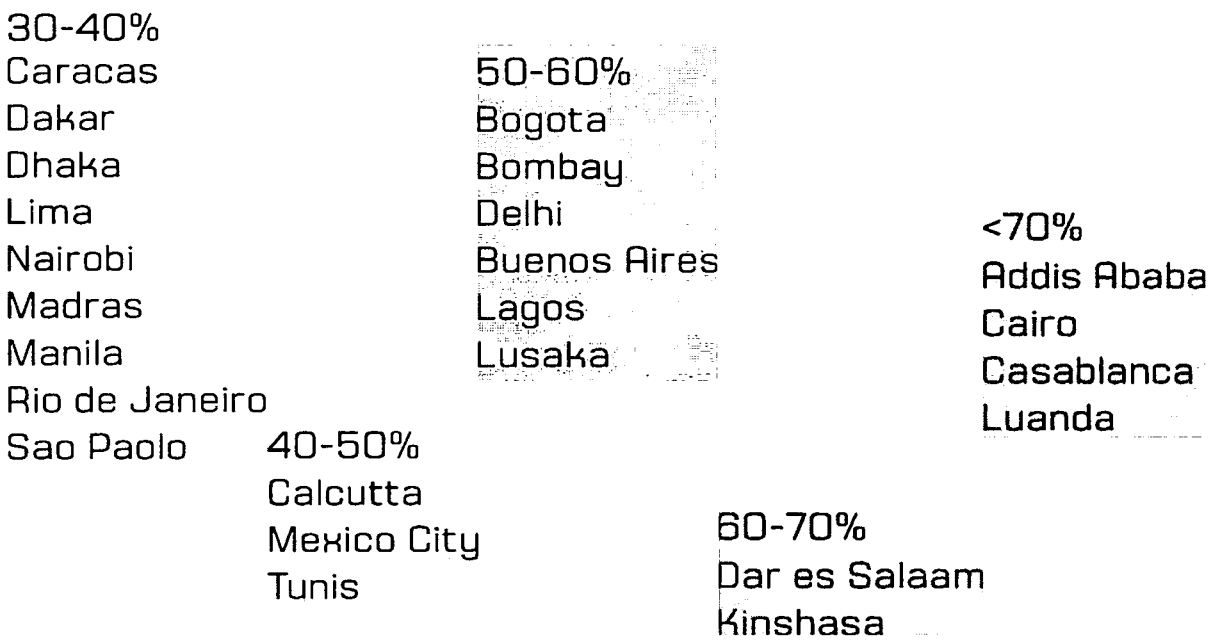

Fig. 2. Percentages of major cities' populations that are new immigrants[4].

little or no reciprocity. The new populations represent instant cities themselves, a base, if you will, in search of economic opportunity. Instant cities exist as settlements in megacities. They are the temporary harbor for incoming populations. They exist as a sheltering unit, void of most conventions favored by its denizens; such as health services, food services, improved public transportation, etc.

The rapid growth of cities has brought about an urban dilemma. Cities are shifting from the actual to the perceived in service provisions and economic opportunity. Traditionally, cities have served as centers of industry and commercial activity. People have flocked to these fiscal islands in search of a better life. For example, New York saw a population explosion in the late 19th and early 20th century as immigrants came across oceans to seek opportunity. Furthermore, London and Manchester harbored millions at the onset of the industrial revolution. These population tides, however, differed from current trends in that a production demand existed that required human bodies to create goods.

The notion of opportunity in cities, however, is a residual effect of history and perception. For example, a poor villager outside Jakarta may move to the city based on the success of a relative. Kevin Lynch has made comments regarding the city as object.[5] He finds that the object lies in the fragments of the city (industry, street corner, etc.). Stories recreate the image of the city as an object of opportunity within the minds of migrating populations seeking employment and a better life. Perceptions are also rooted in the physical permanence of the cities as facilitators of place and history.[6] Cities, as they exist now, are responsible for these perceptions, not their actualization. However, the city becomes responsible for the influx through resources, services, and social support. In developing nations, economic support is not yet in place for these new residents. The gap between myth and reality creates a web of psychological and physiological problems that are not easily isolated and addressed.

As cities move towards a post-industrial society, so must planning agendas. There is a worldwide shift from industry to a service based economy. However, the city is increasingly in service to incoming populations versus providing services to these persons. It is the collective perception of an industrial based opportunity that lures surging populations to the megacities.

The transition from a city from actuality to ideal for massive population fluctuations is diametrically opposed to fixed planning modules and a static model of the city. Important issues in developing megacities are the success of service, and flexibility to meet oscillating needs. Developing countries will have to accommodate up to 180,000 additional urban dwellers daily over the next decade.[7] Each of the new settlers, there is a different set of problems. With traditional models of city planning, isolating problems would be very difficult through macro-planning. Due to this population explosion, contemporary planning issues are becoming too large to apply existing paradigms in thought to how a city breathes and operates.

In less developed countries, production capabilities will have to increase by 65% in its capacity to produce and manage services, infrastructure, and shelter.[8] In this case, major resources are expended for city survival and maintenance, not a better standard of living. Over 600 million inhabitants, between 25-33% of the world's urban population, across cities in developing

countries cannot provide for shelter, food, water, health, and education.[9] A major shift has occurred from the "role of the city as producer" to "city for survival."

Simultaneously, an environmental toll is taken from such an increase without proper safeguards. Indoor and outdoor air pollution accounts for 6 million deaths annually, 90% of which occur in developing countries.[10] Water pollution alone accounts for 5 to 12 million deaths per year.[11] Cities account for 80% of all carbon dioxide emissions, as well as 60% of freshwater withdrawal.[12] In this sense, cities are becoming ecological "black holes", drawing off the resources of entire regions.

Through ecology and commerce, the megacity has the ability to extend its influence from individual to city, city to region, region to nation, and nation to world. As populations affect the production of a city, this absorbs resources from the region. Large increases in loss from a region, in turn, tax the country in which they are located. Ultimately, resource depletion affects world operations in the form of pollution, economic instability, and health issues.[13] The megacity then becomes part of a larger problem, which exits the realm of traditional urban planning towards a more global scale.

TOWARDS A NEW PLANNING MODEL: MEGACITY SETTLEMENT ANALOGOUS TO U.S. MILITARY INSTALLATION PLANNING

Military bases have been used throughout history to extend authority, acquire wealth, and establish outposts. Roman base camps grew into cities, even monasteries, utilizing prescribed factors to increase trade, protection, and transportation efficiency.[14] Roman camps found themselves in the United States when General James Oglethorpe used the Roman camp as a model to turn Savannah from an apparent wilderness into an overnight installation.[15]

The United States military base and installation structure, may offer a new planning model for megacities (Fig. 3). Currently there are 1.37 million active military personnel. In addition to this population there are 1.28 million on stand-by, as well as 669,000 civilian employees within the United States Defense structure.[16] The total operating military population can reach 70,819,436 persons through the draft.[17] Furthermore, the existing population of 3.3 million persons on active or stand-by duty are scattered across 519 domestic bases, 61 overseas installations, and 8 territorial installations.[18]

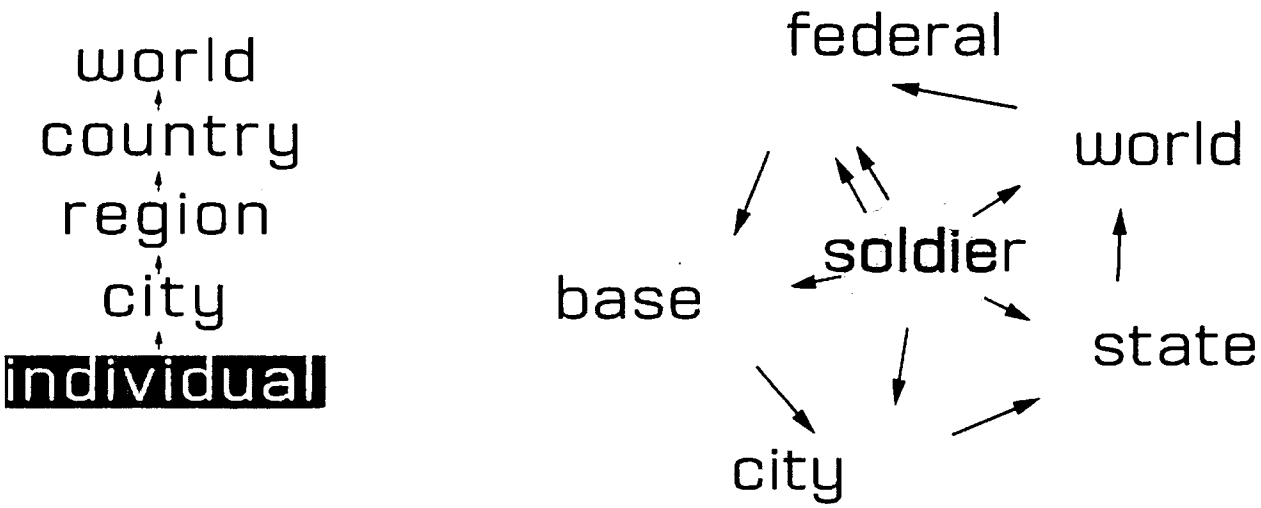

Fig. 3.

The military, *in sum*, acts as a megacity, without the preconceived notion of city as single place; it exists as a collective entity without bounds. The structure of military installations is flexible and independent, yet it maintains a mutual relationship with the federal government, as it acts as the provider of "place." Like the internet, the U.S. military exists as clusters of specialized activity throughout the world. Within each of these clusters is micro-level planning for individual sustainability and quality of life. These clusters serve as an extension of the Department of Defense. Whether it is through naval yards, or air installations, the use is site specific either for need or transportation. In contrast to the city as a fixed entity, it can be viewed in the larger context of the globe: the issues affecting a city also affect the world.

The operative word is extension. Bases exist as an extension of military service, yet maintain independence. If one is destroyed, other bases do not cease to exist, making it analogous to the internet. Because one computer is turned off, it does not affect the others in the network. In other words, the chain is not broken, contrary to the notion of city as provider. On the contrary, cities exist as a whole where one section, new immigrants for example, is dependent on the core for its survival. In this case, potential negative impact can be reverberated throughout the city. Although not directly associated with the other citizens of the city, new populations have the ability to adversely or positively affect them.

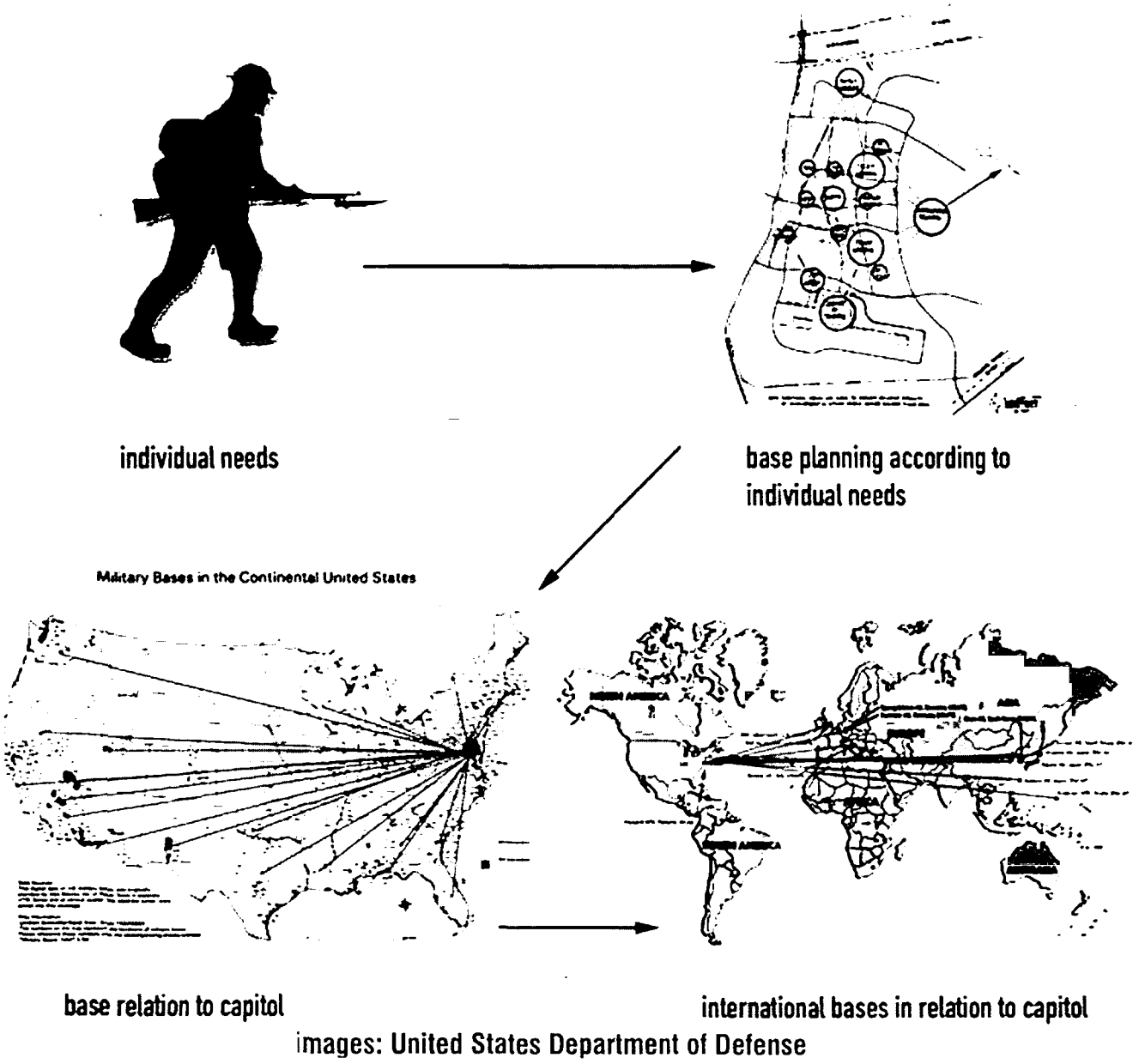

Fig. 4. Soldier relation to the world.

By allowing the city to breathe as a collection of entities acting in unison, the overbearing weights of population fluctuations can be better managed by relieving the city of its traditional role as provider. By isolating these populations and giving them autonomy with restraint, issues are more easily located and addressed on an as needed basis.

Through this structuring, ultimate flexibility is achieved. Military planning accounts for the possible population flux of up to 70.8 million persons. This population exceeds the combined population of Tokyo, Bombay, and Mexico City. Although the land is scattered across the globe, the possible applications of military planning are enormous.

The goal is to understand the methods of military base planning. Put simply, the military views the soldier as the main component of planning (Fig. 4). Planning begins with the needs of each individual and potential soldier. Before looking at site, schematics, and other typical planning components, each existing inhabitant of a base, camp, or installation is accounted for as well as the potential flux of new soldiers.[19]

Each soldier is in need of basic services (Fig. 5). Once again, as the individual turns to group and so on, the required service factor increases. Fire protection and security are other components of individual needs. Recreation is also seen as a vital component of an individual soldiers' ability to perform. To conclude human service variables, education is a primary component for the betterment of each soldier. These factors are given a required amount of square footage per soldier, and multiplied to ensure service structure. Food and allied sustenance are also procured on-site, where space is allocated due to individual needs. The output is then cross-listed with available private resources in the neighboring city to guarantee expanding needs within the base.[20]

Compared to viewing city needs as a whole, this model draws planning to a micro-level able to be replicated for efficiency and adaptability. The core unit of planning then shifts to individual needs. The variety and level of support are then reviewed for several factors. Important in evaluation is the maturity of theater, which refers to the severity and/or time involved in each situation. This affects the actual construction of service units based on threat. This can range from field tents to existing structure use. Facilities vary based on troop and unit type. Although the individual is of utmost importance, the health, morale, and welfare needs change according to the type of unit. A unit can be either rotational or permanent; the needs of each are different.[21] Once individual needs are understood, groups can be formed. By doing this, settlements can be divided into group need for ease of planning.

Facilities may be more substantial if deemed more long term. Generally, military construction begins as temporary construction and may evolve if needed. In the eyes of the military, proof of prolonged involvement is through time and persistence. There is a situational evolution in planning and facility construction. Most important are resources: if there is no financial support, the base simply shuts down and distributes personnel elsewhere. In the "instant" cities, if there is no financial support, there are major psychological and health ramifications. Versus planned, fixed environments and infrastructure, megacity settlements would benefit by this notion of evolution. As time persists, populations will evolve socioeconomically, as will facilities to accommodate this shift.

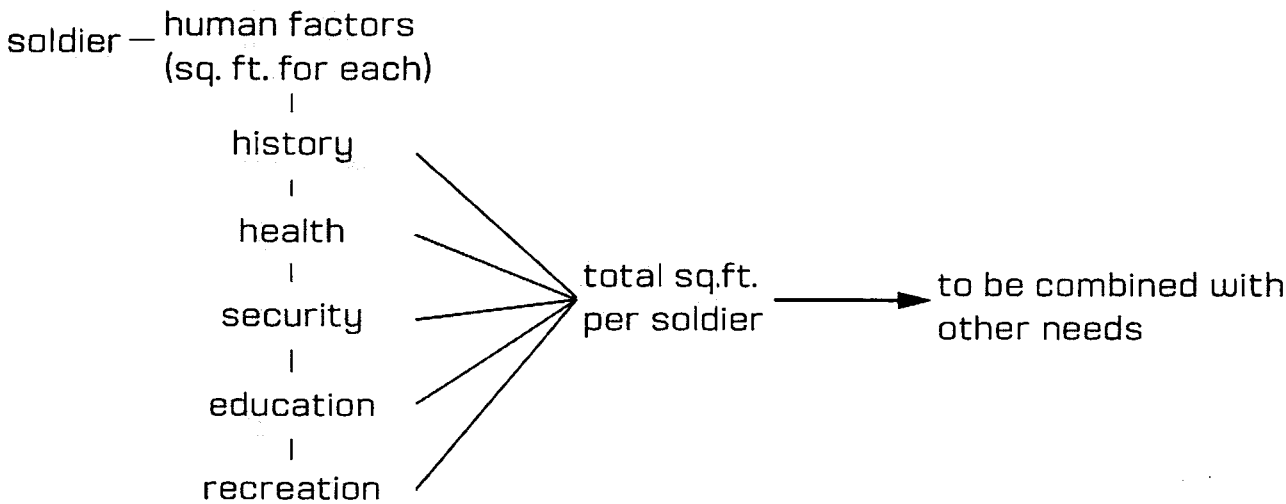

Fig. 5. Components of individual need.

Military installations, however, lack industrial identity. Rather military bases and installation represent the shift to a service based economy. The base operates for the maintenance and security of itself, the country, and other bases. This once again points to the autonomous nature of each base, and its symbiotic relationship with other components. First, the individual is responsible in the planning. The planning manifests a base. The base then serves as the extension of the Department of Defense, which serves as the protector and enforcer of United States policy. Purpose is defined as service and protection itself. Megacity planning can benefit by subscribing to the support and maintenance model. As mentioned before, lack of industry is a great inhibitor of new populations obtaining desired goals.

FROM CITY DEPENDENCE TO NATIONAL INVOLVEMENT

Lack of industry should be replaced with a bolstered service based economy in megacities. Where there is no economy, create an economy. During the depression, F.D. Roosevelt championed the notion of the New Deal. By increasing infrastructure and services, new jobs were created. New jobs eventually turned to prosperity for some. As an offshoot of this domestic plan, new business and industry were created resulting in even more jobs.[22] By mobilizing and training new immigrants in trades, it is possible to create a similar effect through this policy. Through socio-economic evolution, each instant city will be able not only to contribute to their maintenance, but to the host as well.

At the core of military planning there are very useful tools in engaging urban planning issues in megacities. First, is establishing a network between individual-city-region-nation-world. Since city issues have global reach, the policy shift to national level is of utmost importance. This accommodates a dire need as methodology shifts from traditional individual-city relationships to match current population trends.

The national government can serve as *financier* to the settlement needs, but identity will rest on authority within each settlement. This aims to break total dependence on the city, and all possible parasitic characteristics of resource depletion. New settlements should aim at the service mode of military bases. Construction and maintenance should be the actual employer of the settlement, as well as core city maintenance along with other settlements.

The human factors mentioned for the military should apply. Instead of relying on the resources of the city and region for food, agricultural space should be allotted as done by the military with room to grow per individual. This can occur with land allotment per family with seeds provided by national government. By doing this, the settlement becomes autonomous, relying on the city only for start-up funding and agricultural beginnings. As production exceeds needs, the settlement can potentially service the core city and other newer settlements.

Educational services should also be provided with training facilities per individual need. The national government again will be needed for start-up costs and maintenance, but as the settlement evolves, training facilities will be able to provide for their own educational purposes. Fire, safety, and medical services will be provided by the national government as well until it can sustain its own services. As each settlement builds its own foundation, service can be provided to the existing core city and other settlements.

Spatial allocation and construction can also follow military models. In that the military is responsible for the construction of each base, each with its own construction team. Supplies are based upon what is available locally. With national level involvement, resources can be provided to individuals to build their own shelter. This process should follow the evolutionary model of the military, by building what is needed, and if it continues, evolution will take place to guarantee durability. Public areas such as restrooms, mess halls, and health facilities will be aided in construction by the government. Recreational areas will also be allotted according to individual usage, eventually progressing to public spaces.

Further services such as potable water and roadways will be provided by the national level government as well. This will include employment of core city laborers to stimulate activity among settlement and host. The policy for environmental management will be provided to ensure quality of resources. As trained individuals increase, environmental services can be provided by settlements.

CONCLUSION

Current and projected population trends call for a new mode of thought in urban issues. The role of the city has changed as has its inhabitants. Cities are increasingly forced to fight for survival. Burgeoning population needs are drawing resources that are vital to core city existence and profit. Megacities are extending this toll to the world as they place economic, ecological, and social burdens on global support systems. Increasingly cities are becoming inhabitants of the world, and as the world continues to shrink, policy and planning thought should be revisited to incorporate a belief of mutuality between city, region, country, world and their populations. No longer do cities exist as islands in the stream, rather they are becoming the stream. Cities such as Bangkok are expected to account for roughly 10% of the total population of Thailand as well as 80% of its GDP.[23] In such cases the city has metaphorically and economically been transformed to a "city-state."

Military planning techniques to house large populations across an array of facilities offers a model for the demographic shifts toward global megacities. Most important is the military's ability to correlate individual need with community need. Furthermore, the military model is based on the concept of a flexible module which embraces change, which better addresses the increasing complexities encountered in megacity planning.

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