

Planning for Health and Sustainability (Low-Fat Cities)

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1. Planning for people

The objective of this paper is to demonstrate the increasingly important role that planning and urban design have in fostering the good health of inhabitants of urbanized areas.

While the issues of health of the late 19th century and most of the 20th century were largely related to levels of pollution and contaminants in the air and water, as well as related issues of disease. As populations become wealthier, having access to new technologies and conveniences in the late 20th century and thus far in the 21st, we have new health concerns that are an outgrowth of our new living patterns at the scale of the home, city and regions.

2. Environments for a sedentary lifestyle

Increasingly we live in a technology supported environments. Be it with the convenience of an elevator to go up a building, an automobile to compress horizontal distances, or the Internet to eliminate the notion of distance at all, at least in a virtual world. These modern conveniences are shaping our environment, just as they are shaping us. Yet our bodies have not yet been able to evolve or to be reprogrammed to accommodate our increasingly physically passive lifestyles.

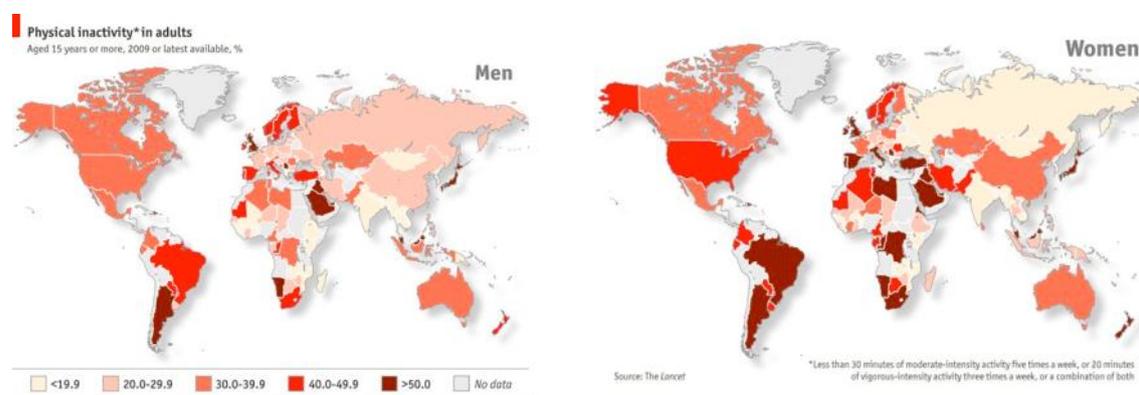


Figure 1: Physical inactivity in adults.

2.1 Increasingly sedentary lifestyle worldwide

Current (2013) research by the NIH (CDC) in the US, UK, China, India and Brazil has charted a precipitous course of an increasingly sedentary population from the last few decades to beyond 2030, that has a direct repercussion on health and well being of humans at a global scale. While increasing work and leisure “screen time” play a significant role in alarming trends of increased obesity, hypertension and diabetes, so does the organization of our physical environment. Our fragmented urban expansion patterns discourage basic living patterns that are healthy for humans and this is especially the case in the expanding areas of cities in rapidly developing countries.

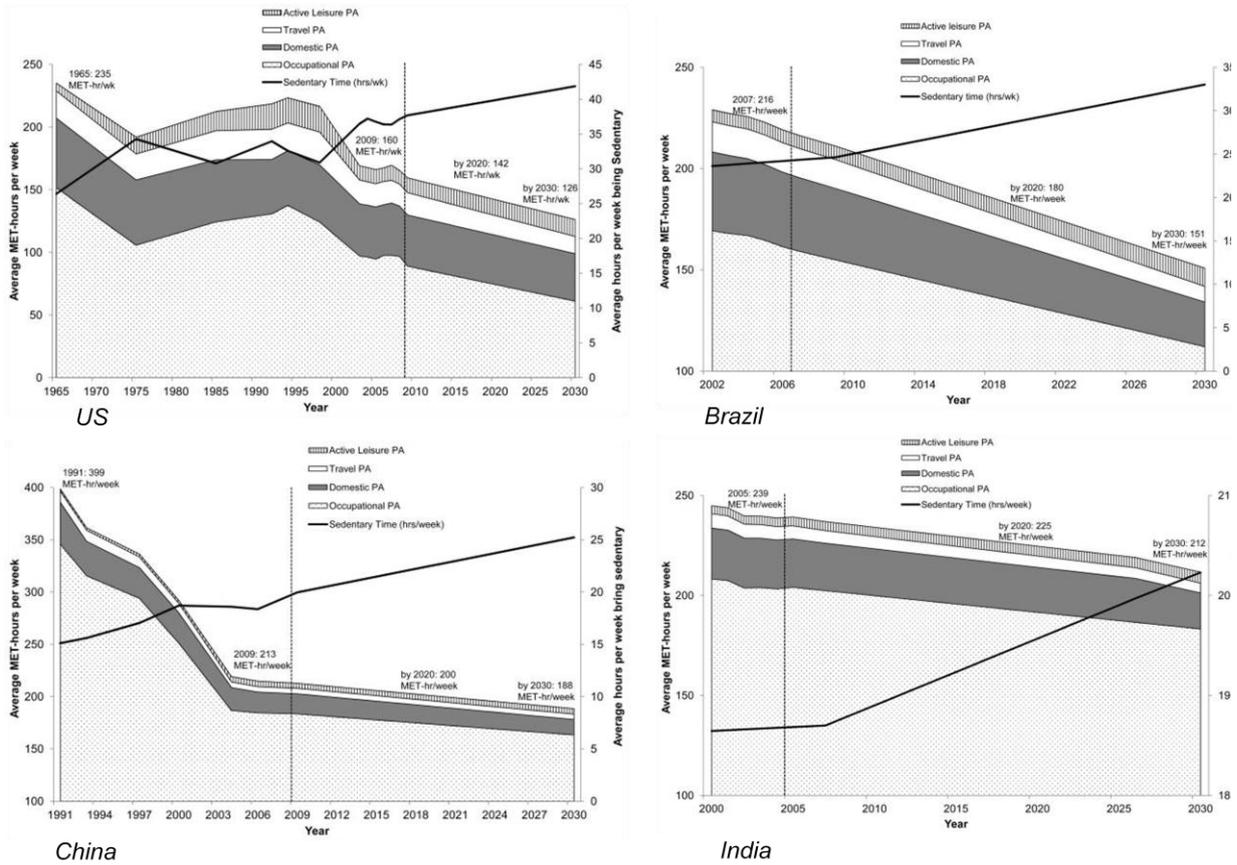


Figure 2: Increasing sedentary lifestyle worldwide.

2.2 Obesity trends in the US and the world

Obesity trends in the US are well known and well documented, although the relationship with physical planning is only beginning to be understood. With 38% of the American population clinically obese, metropolitan areas are now rated as more or less helpful to achieve weight loss. Key factors include: number of people who bike or walk to work instead of driving and access to healthy foods. While planning is not yet perceived as a key part of this equation, both driving time and screen time correlate with increased obesity and related diseases. The US now devotes 17% of GDP to supporting an increasingly unhealthy population.

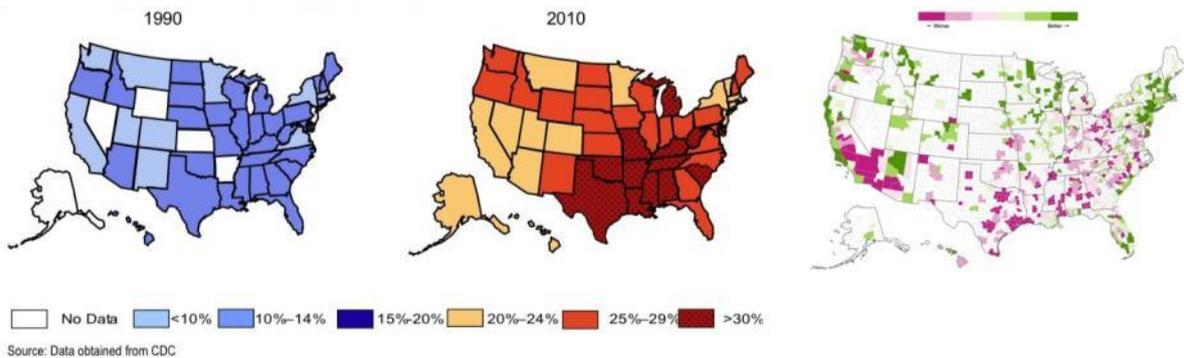


Figure 3: Comparison of obesity trends (in percent) in the US in 1990 and 2010 /left/ Best Metros for Weight Loss /right/

Aspects of a 20th century American lifestyle have been propagated through media and products throughout the world. Television programs like “Dallas”, popular worldwide during the 80’s and 90’s were models of how life would be under capitalism for many transition countries from New Europe to Latin America. A life set between gated compounds, shopping malls, glass office towers.

South Forks is now set in an upper middle class area that has one of the highest school obesity rates in the state. Obesity has less of a link to poverty today, than it had several decades ago. Instead it is increasingly associated with affluent classes. The state of Texas has created a web site, “www.reshapingtexas.org”, which demonstrates the extent to which Americans are aware of their epidemic. Americans now, on average spend over 2 hours each day in their automobile and over 5 hours a day in front of a television or computer screen.

Yet, just as many American’s are becoming more conscious of their unhealthy lifestyles, many rapidly developing countries around the world are now headed in the tracks of the United States of several decades ago. The obesity trend is global. It is a harbinger of other directly related illnesses like diabetes, hypertension and cancer. For example, by 2030 over 25% of UAE citizens will be diabetic and in Brazil 1% more of the population has become obese during each year of the last decade. These trends cannot be explained by changing diets alone.

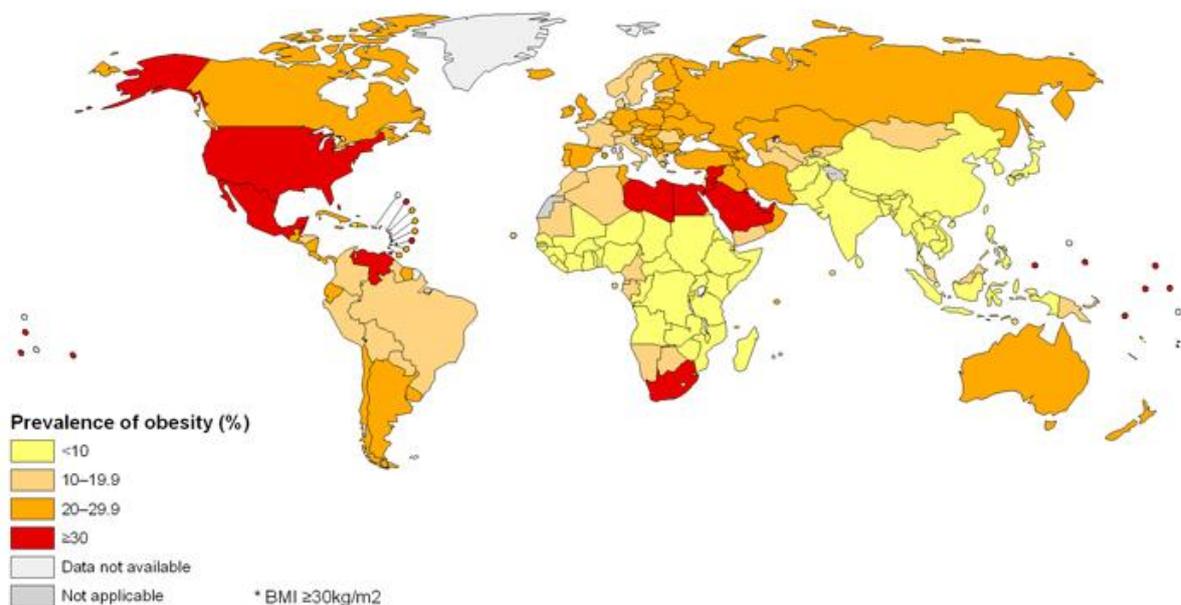


Figure 4: Obesity worldwide.

2.3 Unprecedented Screen Time

Throughout the world, people of all age groups are increasing their screen time: time they spend watching TV or on-line. While Americans remain leaders in Television viewing time, several Asian countries have surpassed the United States in their use of the Internet. The city of Seoul has created a program of “I Will Centers” that have been established to reduce Internet addiction among Children and Adolescents.



Figure 5: Relationship between prevalence of overweight and daily screen time. New headquarter of Facebook.

There is a direct correlation between weight gain and screen time, effectively because of the inactivity that it promotes. It is interesting to observe the kind of isolated urban environment companies like Facebook choose as their home. It is hard to determine whether this is a conscious decision or the pragmatic need for immediate space made possible by the availability of the former Sun Microsystems headquarters. In either case, it is telling of an anti-civic physical world in which the virtual – world may be all too comfortable with.

2.4 Automobile dependence

The United States is perhaps the country most recognized for dependence on the automobile as the main form of short and medium range transport. In addition to averaging over 2 hours a day driving, American cities have largely lost the capacity for allowing people to get around any other way. The lack of density and programmatic diversity within walk able distances simply take waling out of the transport equation. Given that each hour driven per day increases ones chance of being obese by 6%, and each kilometer walked in a day reduces chances of obesity by 7%, it is no wonder that as driving distances extend with the city fabric, that people have trouble keeping their health.

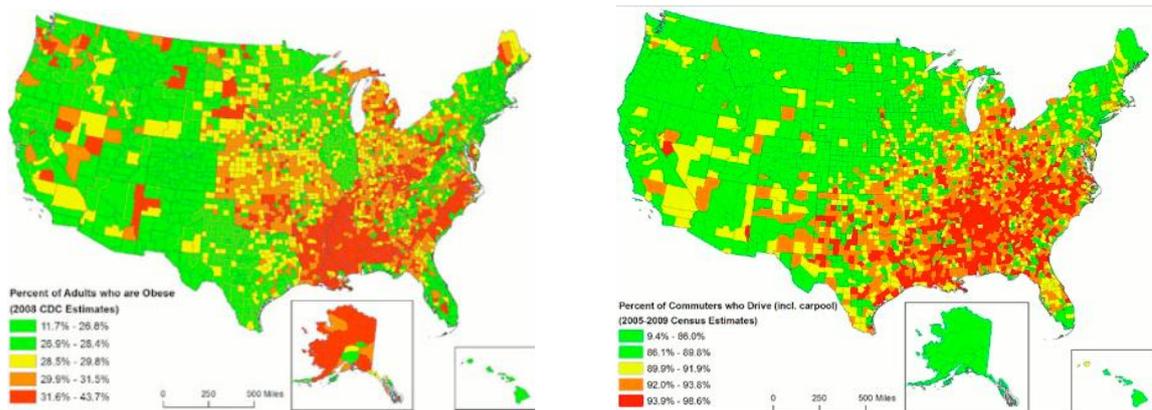


Figure 6: Obesity Rate vs. Driving.

Even new high-density environments China, manage to make their cities, unintentionally, but by design, unfriendly to pedestrian use. Urban edges of “New” European cities fare no better – as if built for automobiles instead of humans. Brazil, with parts the Middle East, are

perhaps are most extreme cases of conscious re-orientation of the urban environment toward the automobile.

Dependence on the automobile and the physical separation of activities has grown at an unprecedented rate in Brazil. For the automobile it is, as with any other country in rapid economic transition: when you can afford to buy one you do. But in Brazil it is also part of official national economic growth policy which might have made some sense during the brief time when Brazil was oil/ethanol autonomous, but now that the growth in number of automobiles has been compounded by the increased distance that they are travelling – a pattern that echoes the United States during the late 20th century, even with increased oil/ethanol production, Brazil cannot keep up with its own domestic demand.

This rise in automobile use has compounded itself in both the urban parts of Brazilian cities and the suburban extensions of those cities. Shopping centers are primarily conceived for those able to arrive by automobile. Prime office buildings have spectacular car lobbies for those who alight from their vehicle. “Urban” apartment buildings anticipate 2 car parking places for a 50 M2 apartment and commonly 4-6 for a 150 M2 or more apartment. The driving restrictions in some cities based on license numbers has had the effect of encouraging households to own more cars, rather than to leave the car at home a day or two of the week.

New homes outside the city also have a standard of 4 to 6 parking places, the assumption being that anyone old enough to drive, needs a car. On the highway from Sao Paulo to Campinas, rest stations reach a new level of integration with daily life: They include multiple banks, shops and restaurants – naturally all drive through.

2.5 Case Studies

Case studies in Brazil and Poland, which analyze existing planning, urban design and living patterns on the urban frontier of cities will serve as a basis. It will examine density, interconnectedness, movement systems, distribution of land uses and microclimates. It will compare specific and intentionally very different urban development projects that attempt to address and remedy the key challenges to health within these urban frontier areas.

3. Brazil / Changing lifestyle in Brazil

In no country has this modern degradation of health been so apparent over the last two decades as in Brazil. A country rightly proud of its ancestral diversity is often said to represent the future of mankind, the ultimate mix of people from all over our planet. Unfortunately, it may also represent another dimension of our future society, that of one that is increasingly sedentary, but not by conscious choice.

Three components of life in Brazil have changed significantly over the last decade: Increased car ownership, Increased numbers of fortress like environments and time spent in front a computer/television screen.

Obesity in Brazilian society has been growing over the past decade at approximately 1% of the population per annum. This is a rate of increase higher than that ever experienced in the US, where 38% of the population is now statistically obese

Diet, usually considered the main culprit in this field, has changed little in Brazil over the last decade and cannot be considered the primary cause for this decline in health.() XXX

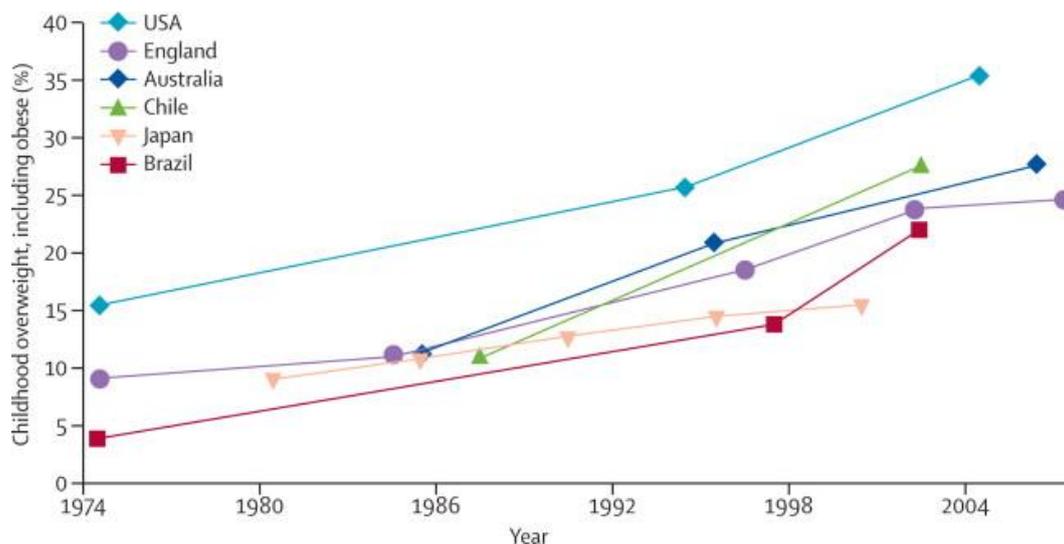


Figure 7: 1% more Brazilians are obese each year during the last decade

3.1 Typical planned urban extension: São José do Rio Preto

A typical example of urban growth may be seen around one of Sao Paulo's satellite cities: Sao Jose do Rio Preto. Following in the footsteps of the Alphaville model, a master-planned series of gated communities pioneered during the 1970's.

Their major sales point is security, in a presumably dangerous environment. They provide a checklist of secondary features like a central green space and athletic areas, usually a football pitch, tennis court and a pool. Lots are sold with building guidelines that allow for a very tight, if sometimes incoherent, build-out. Although the surface coverage of the lots is very high, there is no effort to create a pedestrian scale to the streetscape. In most projects, it is up to the owner of the lot to build a sidewalk, or not. For this reason, it is common for 20 year-old developments of this kind to not have a completed sidewalk network. Some gated communities do away with sidewalks altogether. Cycling paths are a rarity. Streets are broad to privilege driving, even within the community.

The height of the walls both around these communities and between homes is typically 3 to 4 meters. Given the Brazilian climate, this has the effect of cutting off the natural breezes that make much of Brazil such a comfortable climate to inhabit. Once that breeze is taken out of the ambient temperature equation residents are obliged to air condition their environments in order to live comfortably. Temperatures are further increased by a majority of paved public spaces and a very high construction ratio within each building lot.

So much is done to keep the residents from walking within these compounds. With the imposing walls around and gates to enter the communities it is even less imaginable to venture out on foot or bicycle outside the communities.

The net effect is twofold regarding the sedentary nature of life in these places: The dependence on the automobile for any activities outside the home and the deserted character of the neighborhood for residents of all ages. It is simply too far and too uninteresting to go any place on foot. Inhabitants will either drive significant distances to go about daily life, or they will retreat to a virtual world via internet and television in the comfort of their own home.

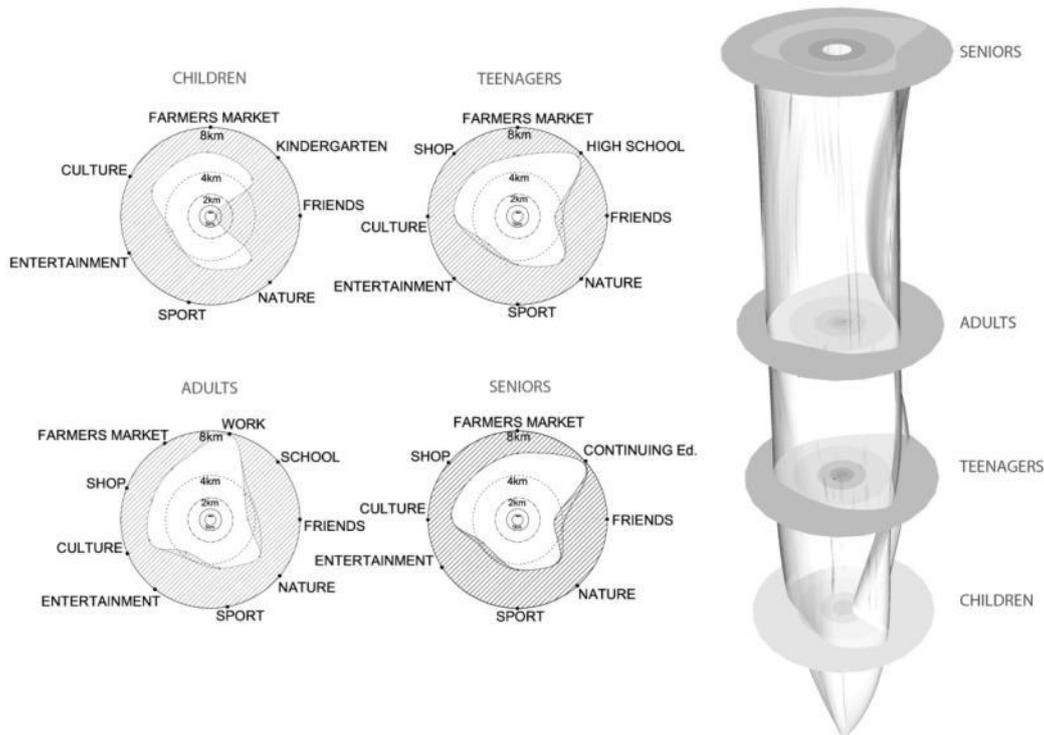


Figure 8: São José do Rio Preto, SP, Brazil Environmental pressures for weight gain /Guy Perry, IN-VI 2013/.

Residents who have moved to these areas from older neighborhoods bear two immediate consequences: a challenge to remain active and reduce their chances of obesity and of social isolation, often compensated by screen time.

3.2 A Typical Urban Extension vs. Health Based Design

The author has attempted to overcome the inherent health pitfalls of the typical Brazilian gated community by planning a community that encourages a more active use of the common spaces and features in and around the community. Focusing on four factors:

1. Proximity and convenience: Instead of creating a military style isolated gate into the community, the entry to the community is set on an entry plaza which provides shops, services, a market and a grade school. While the community remains gated, the message is that security is achieved by creating amenities that service the area, not only the community within the walls.

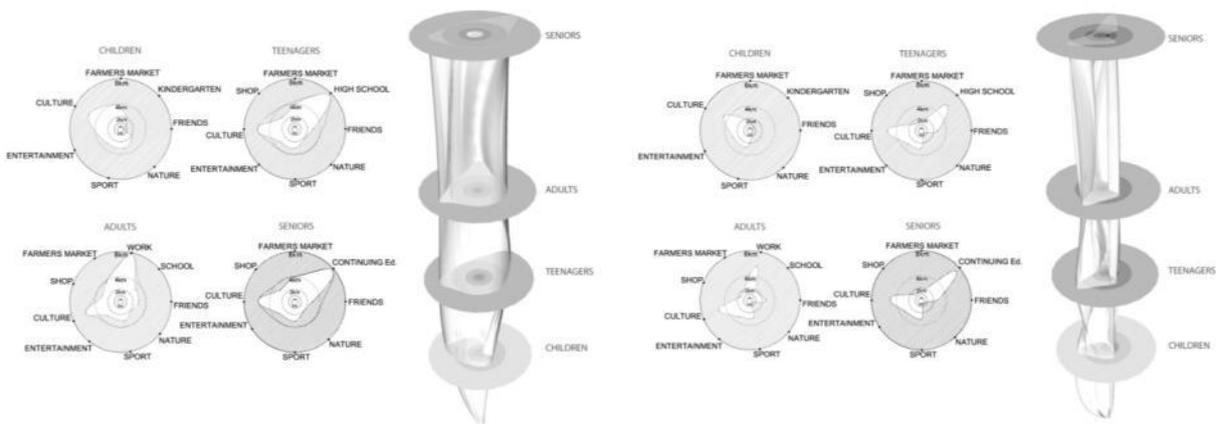


Figure 9: Alphaville (left) & Brisa de Atalaia (right), Sergipe. Environmental pressures for weight gain (below). /Guy Perry, IN-VI 2013/.

2. Focus on human scaled streets and common areas: The streets are conceived with a sidewalk/cycling path from the outset. No parking area is specifically built for the Club-house or beach although on-street parking is possible along the boulevard leading to it. Maintaining the majority of coconut palms provides shading to facilitate walking and cycling.
3. Diversity of housing offer: The community includes a range of housing options from 60 to 600M2. Intended to appeal to different stages in life, without a stigma of economic differentiation.
4. Respect of the existing ecosystem and protection of the coastal microclimate: Existing lake areas are protected, when possible trees are transplanted within the site. Housing set backs from lot lines, along with limitations in wall usage in heights allow ocean breezes to permeate the site.



Figure 10: Brisa de Atalaia, Sergipe

The overall effect is to compress distances to many daily activities and by doing so, get people away from their television or computer screens and out of their cars when they go to make basic errands, social gatherings, partake in sports, or go to the beach. Over 90% of the residential lots have direct access to the beach or lakes. The mild temperatures ensured by maintaining the breeze, the generous lakes and the shade created by the preserved palms will also reduce the thermal shock of going outside. Ideally, the protection of the microclimate will decrease the use of air conditioning for residences on the site, encouraging an indoor-outdoor lifestyle, common to all classes in the region, until recently.

3.3 Brazil conclusions

Comparing three economically successful projects: Sao Jose do Rio Preto (SP), Alphaville Sergipe and Brisa Damha, Sergipe we see the pressure for sedentary life in the first two through the significantly greater pedestrian distances, the quality of the on ground experience which is compromised by missing sidewalks, monotony of the streetscape and the lack of shading. The net effect is an environment that promotes obesity and it's related diseases. Brisa Damha, demonstrates the possibility of building a "Brazilian market" product that contributes to a more active, socially balanced and civically engaging lifestyle.

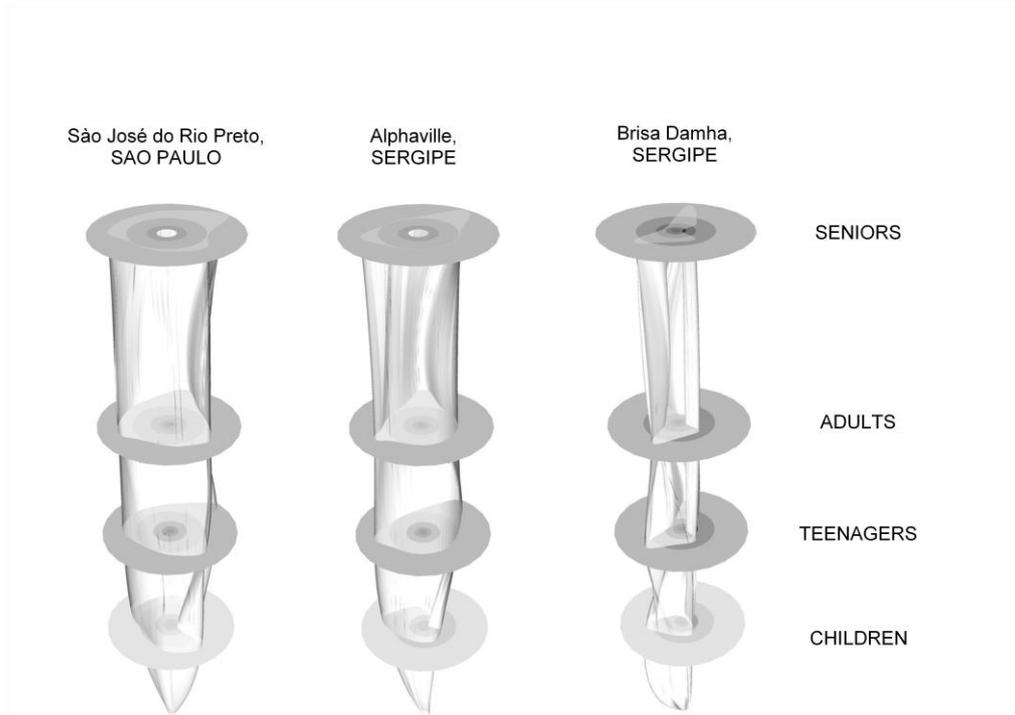


Figure 11: Summary Brazil. Environmental pressures for weight gain. /Guy Perry, IN-VI 2013/.

4. Central Europe and Poland

The Americas may seem like an easy target regarding the relationship of physical urban sprawl and obesity, however, European countries, especially those that have enjoyed rapid growth during the last decades have also showed significant increases in rates of obesity and degradation of health.

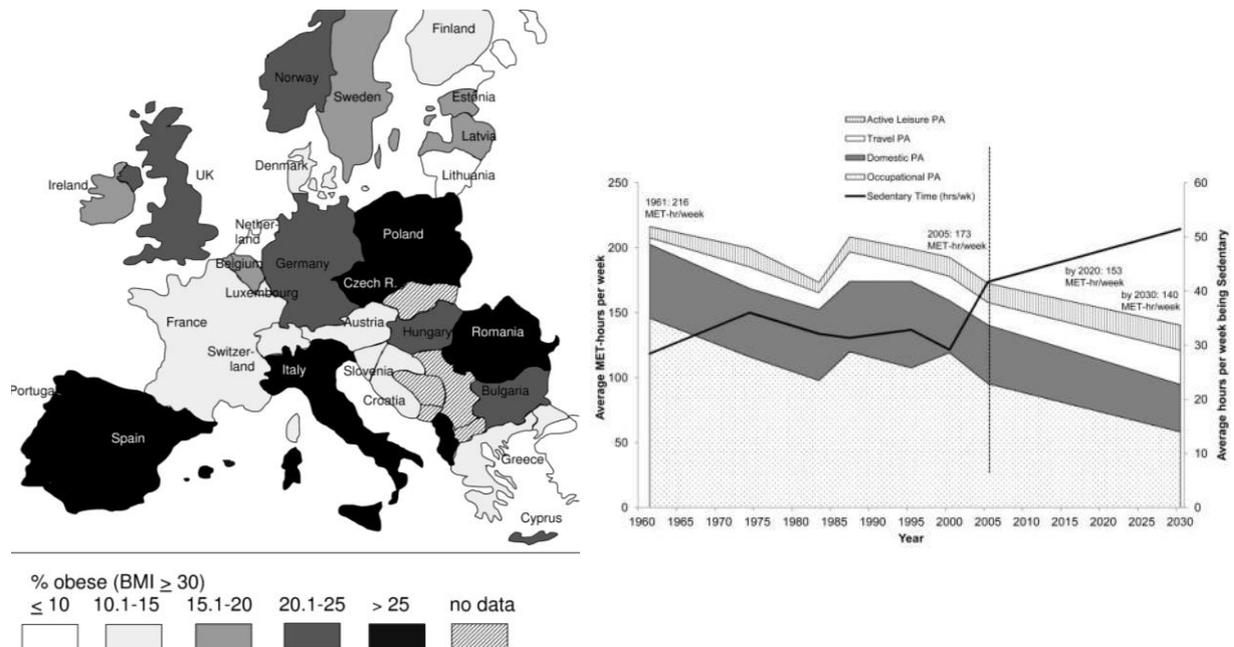


Figure 12: Obesity in Europe. Increasing sedentary lifestyle: United Kingdom.

In the UK, the only European country examined in the CDC study, occupational physical activity is declining at a rate that cannot be offset by an increase in leisure activity. It would require a significant increase in transport related physical activity to come close to striking a physical balance. This is a pattern likely to be echoed by other countries on the continent. While residents of the core of European cities still enjoy, in most cases, a physically vigorous urban environment, the peripheries of those same cities are physically challenging to lesser or greater degrees. Even Vienna, arguably one of the worlds best planned and managed cities, has its sprawling southern suburbs and increasing drive times along the highway corridor to Graz.

4.1 Urban expansion around Warsaw: Targowek-Marki vs. Miasteczko Wilanow

Warsaw has been one of Europe's fastest growing cities during the period from 2002 to 2012. It is worth comparing two distinct ways in which that city has expanded and their potential impact on the health of their inhabitants. Both areas were green fields in 2002, which have been developed rapidly and both are approximately 9 km from the center of Warsaw. The first is the Targowek-Marki area, with a development pattern we may consider typical of suburban development around Polish and Central European cities today. The second is part of the Wilanow district, a planned, integrated, mixed use district that is currently approximately 75% completed.

Targowek-Marki is physically characterized by a series of single use, limited access environments. Each enclave has a vehicular entrance that provides access, and an impression of security for residents. They are comprised of repetitive units that generally sell for nearly identical price points. Enclaves are surrounded by walls of varying height and are purely internally oriented in their organization and design. A resident of such an enclave may have to travel two or three kilometers to reach the "neighbor" or shop on the other side of a fence. Retail development is similarly inwardly focused, but in the form of shopping malls or big box retailers and are surrounded by parking areas larger than the buildings, themselves. Village schools and services are stretched beyond capacities in the face of rapid development. Few offices are located within this area.

Although there are constant programs of highway enlargement through the area, sidewalks and bicycle paths are scarce or nonexistent, making it hazardous to walk or cycle outside of the compounds. When paths do exist they are isolated, unconnected and generally go unused. The area has become nearly 100% automobile dependent for transportation. These built enclaves provide little activity or entertainment for children and teenagers that do not have access to a vehicle.

Miasteczko Wilanow is characterized by high-density development organized as part of the fabric of the city. Each building has a public face along streets and private side within courtyards. A large part of the ground floors of each structure are devoted to commerce and services. An office park, including research facilities and a hospital is constructed in scale with other buildings within the neighborhood. A variety of shopping centers with both an inward and outward orientation serve the neighborhood and surrounding district. Schools for all age groups are clustered within the area. Within the community the John Paul II Museum will be set within Europe's largest church built in the last 200 years. Few fences or gates remain, once construction of a parcel is completed.

Roads and parking areas are carefully sequestered in the area. Over 90% of the parking is contained under the ground level of the buildings. Sidewalks and bicycle paths connect all points in the new district. The paths are so popular that the shared bicycle program, normally reserved for the heart of the city has among its busiest stations within Wilanow. The primary form of movement within the community is on foot. There are over 30 Playgrounds for children of all ages while teenagers have sports facilities within cycling distance. The new

shopping areas are working towards integrating skateboard, BMX, snowboard parks and a skating rink within their developments. A bio and local farmers market has been launched and is highly successful within the community.

Marki, Warsaw



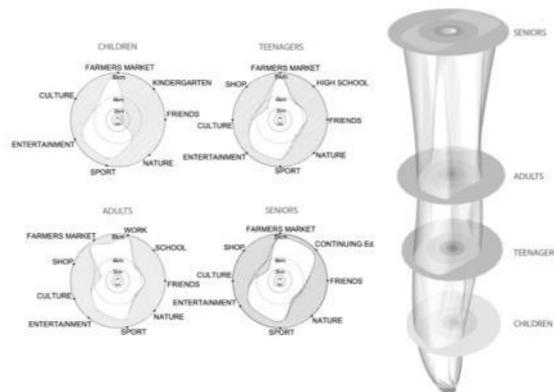
2002



2011



Land use Targowek - Marki



Miasteczko Wilanów, Warsaw



2002



2011



Land use Miasteczko Wilanow

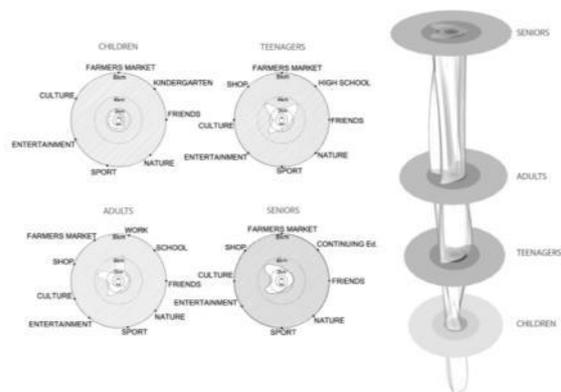


Figure 13: Warsaw, Marki vs Warsaw, Miasteczko Wilanów 2002 - 2011. Environmental pressures for weight gain. /Guy Perry, IN-VI 2013/.

4.2 Preliminary Comparative Data

While both Marki and Wilanow continue to grow rapidly and it is too early to have conclusive health statistics from these areas, several key indicators were revealed by publications of the Statistical Office of Warsaw in 2011. Among them, Wilanow enjoyed the highest birthrate in Poland, a child obesity rate of 0.47 %, compared with over 1% in Targowek - Marki and a adult Neoplasm (Cancer) rate of 0.27% compared with over 0.7% in Targowek - Marki.

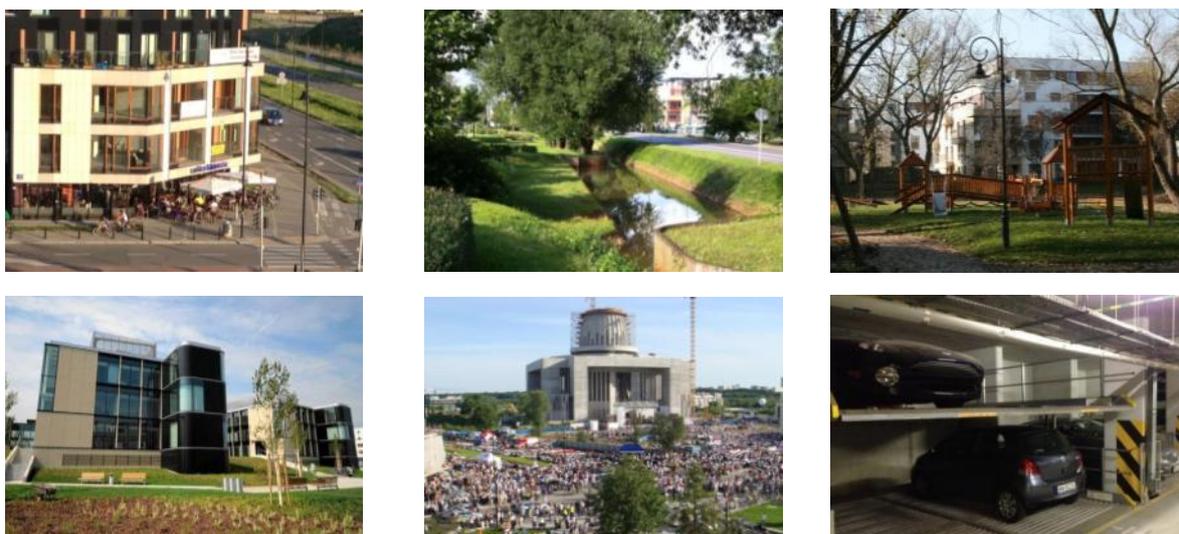


Figure 14: Miasteczko Wilanów 2012

It will be informative to monitor the relative health of this neighbourhood during the next decade. Current indications demonstrate that the district may be on track to create a standard for health driven design.



Figure 15: Miasteczko Wilanów. Public spaces in planning.

4.3 Residual Benefits

There have been a number of residual benefits of the integrated high density planning that are beyond direct health. The Wilanow district enjoys the lowest crime rate in Warsaw. As many visitors say: "it is the only place in Warsaw without graffiti on the walls". The streets are very public, yet "claimed" by each resident. There is a visible pride when families walk down the first finished, well-groomed streets. Streets that the residents themselves finished to their liking. Miasteczko Wilanow also achieved a record voter turnout for Poland during the 2010 presidential election. The high density of land development, with over 10,000 residents per KM2, allows for the protection of hundreds of farms within the city limits of Warsaw and direct access to open spaces in the countryside which effectively make ideal walking, jogging, cycling and even ballooning environments.



Figure 16: The highest birth rate in Poland (13.25/1000 vs 10.04/1000 in 2010) /Newsweek (July/August 2012).

4.4 Residual benefits

Tackling the very tangible issue of health may also be a way of effectively grappling with general issues of environmental sustainability. Given that environmental sustainability continues to be considered an abstract, non-pressing issue, by most, health, in contrast may serve to reframe these related issue to create a platform for an immediate planning dialogue. The urgent issue of human health, when seen through the lens of planning, will raise awareness that by building more humanly oriented urban environments, we are addressing human environmental sustainability at a global scale as well.

5. Conclusions

Human built environments are becoming increasingly challenging to the health of their own residents. This evolution has crept up on our civilizations during the last decades of the 20th Century in the form of the spreading and segregation our environment often for short-term economic or political gain. The mechanization of our environment, long a symbol of technological progress, may have already gone too far for our own physical wellbeing. That

late 21st century challenge to our health is now being compounded by an increased orientation to a virtual world - one that engages us mentally, but not physically - at least for the time being.

Our own profession is partially, perhaps in some cases, largely, to blame for the physical inefficiencies of our cities relative to human beings today. However, it is not too late for us, especially in rapidly growing environments, to make our built environment relevant by being interesting, vigorous, healthy and environmentally sustainable enough to balance the impact that a parallel virtual world is having on our current and future wellbeing.

Building more humane environments are not only about protecting the health of mankind, they are, it turns out, to protect the "health" of our planet as well.

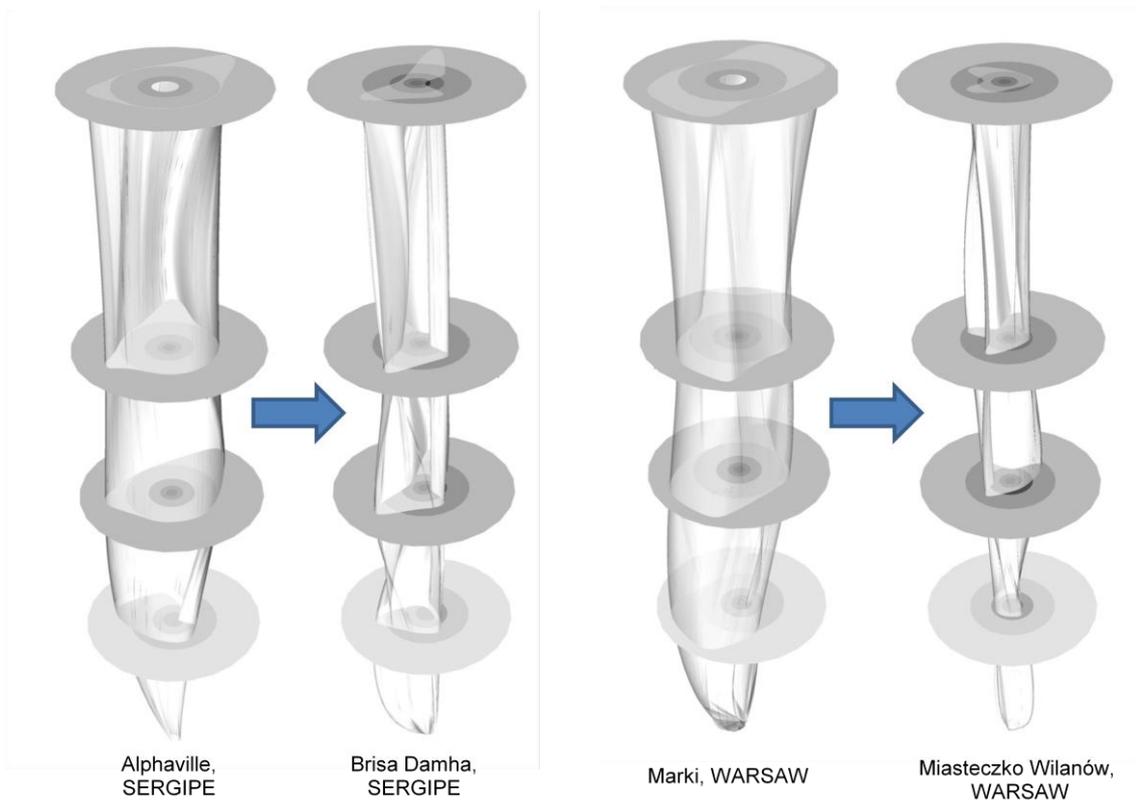


Figure 17: Summary. Environmental pressures for weight gain. /Guy Perry, IN-VI 2013/.

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Figure 1.

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Figure 2.

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Figure 3.

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Figure 4.

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Figure 5.

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Figure 6.

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Figure 7.

www.sciencedirect.com

Figure 8.

<https://maps.google.com/>

Figure 9.

<https://maps.google.com/>

Figure 12.

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Figure 13.

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Figure 16.

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