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Chance – Change – Challenge

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An Affective Design for Planning City

Via Multi-Criteria Analysis of Urban Texture

[Rola Kamal, Rania Kamal]

***Abstract*— With anticipated increases in population, the most challenge of sustainable planning is require methodology to create and update comprehensive plans, in this context; urban planning is character of any city, so it is necessary to keep away from mistakes in planning at early stages in order to own more sustainable cities. Communities no longer tolerate projects, plans, or even a planning process that does not include widespread public participation, so we are needed to bridge between Planning team and the population that will stay living at the city to achieve life good. In this paper, a prototype that proposes is Kansei City represents an approach to city making that may well set a standard for the future. This city is achieve better standards of all components of the city and supports a city inhabitant's decision-making on city comparison and selection. In comparative stages will be using the analytical method calculated by using Analytic Hierarchy Process (AHP) analysis, and based on two steps, decision hierarchy structure and suppose that criterion feedback. Then use Expert Choice software program for decision making.**

***Keywords*— problems of cities, sustainable urban development, planning process, brainstorming of planner, kansie engineering, an affective city, population affective hierarchy, affective planning hierarchy, AHP.**

I. Introduction

The existence of problems in cities such as slums, the decline in the performance of the road network and environmental pollution, etc. is a need to create sustainable urban development and quality living environments for the growing urban populations of high-density cities in the light of the desired vision of urban sustainability.

A planned city is a well prepared city: To anticipate future problems and trying to solve it from a beginning is the core of urban planning. As well as manage risks and analyze the current situation, but this not achieve without engagement of stakeholders "Population". Participatory planning, here, is an important lever to enhance the legitimacy of policy-and decision making by creating a sense of local ownership and ensuring consideration of citizens' and property owners' rights (Gh. Hassan, et al).

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The main aim of this research is to establish a methodology of planning the new cities; therefore, it can be a guiding policy instrument for decision and policy makers. This methodology is stop-gap between planning process and population as they are customers and the city consumer product in big-scale daily life.

To realize this aim, as well as to alleviate the drawbacks and gaps in current attempts of urban planning, there are four main objectives the research attempts to realize, as follows:

1. Defining the meaning of urban planning of identifying sustainability goals and objectives.
2. Establishing a model, which envisages future problems of a new city planning and trying to solve it for a typical planning process.
3. Defining the meaning of affective/Kansei Engineering and developing it concept to city.
4. Establishing a methodology, which named "an affective/Kansei city".

II. Towards Sustainable Cities

The Low of problems is important degree for success. In this context, at the beginning of The Death and Life of Great American Cities, Jane Jacobs writes: "Cities are an immense laboratory of trial and error, failure and success, in city building and city design". This is the laboratory in which city planning should have been learning and forming and testing theories (Harvard Design Magazine, 2006). The most problems can make any city failed is the decline in the performance of the city such as population, transportation failure, atmospheric pollution and low of green and opining area and 'increasingly international, global and potentially more life-threatening than in the past' (Pearce, 1989) See C. Mooghtin and P. Shirley, (2005), so success in the coming years must be depends on faster performance in giant comparison with growth population. Fig. 1. is showing some factors stem from city problems (Fish bone diagram).

Cities currently are increasingly becoming 'high-density' or 'mega', as characterized by their compact urban fabric and large urban populations; this is especially true in developing countries where it has become immensely difficult to achieve sustainable urban development with high quality of life (Ch. Ren. et al, 2013), this is the main problem that the population will be continues increase, which could lead to informal buildings, overlapping land use, scraping agricultural land, and the exploitation of green spaces for residence, leads to crowding movement of transportation, see Fig. 1.

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2. Towards Sustainable Cities

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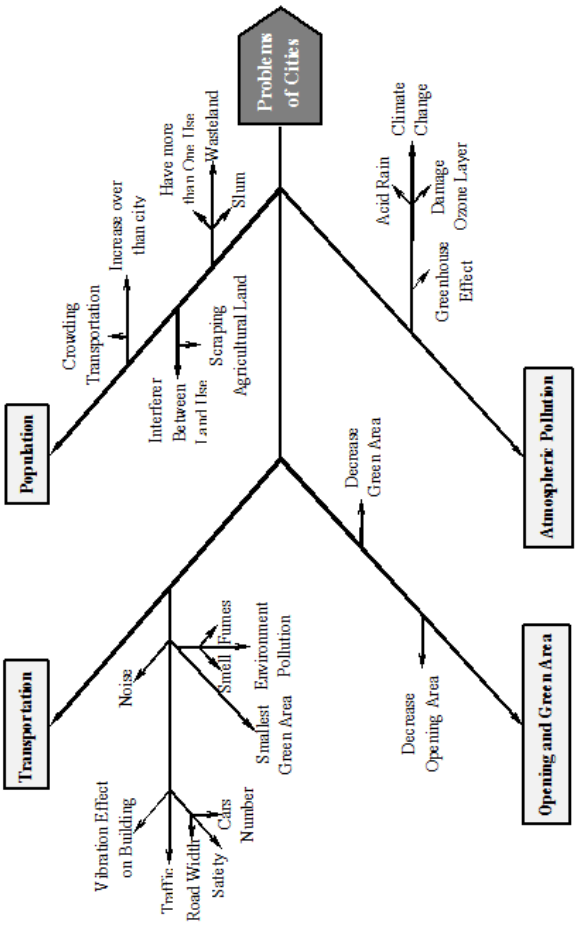

Fig. 1. Hierarchy of causes and defect of cities

Reduction of population growth is not an end in itself; nor does it for every country or for every point in time increase the potential growth of income per person, but in the circumstances prevailing in most of the developing countries, rapid population growth impedes economic growth by reducing investment per person in physical capital and human skills, for individual families the number of children affects how much parents can invest in each one's health and education and thus in their future earning power (The World Bank, 1980).

But population satisfaction and a feeling of belonging to the dwelling, together with people feeling they have an identity in their community, can result to improve both quality of life and public health, in this context; the report of World Bank (1980) have shown that the population variable self-regulation, in the other words that people are spontaneously inclined to organize their numbers at reasonable levels, when rising standard of living and changes of lifestyle, without need for family planning programs, guidance and propaganda (The World Bank, 1980). Fig. 2. has been evidenced by in the experience of advanced countries that the population problem disappeared over the economic and social progress, see (UN-Habitat 2009), So starting point it will be set mental target and path that determines the future. Thus, when the criteria for success are achieve to the idealism in city, the planning was obviously well done from the beginning.

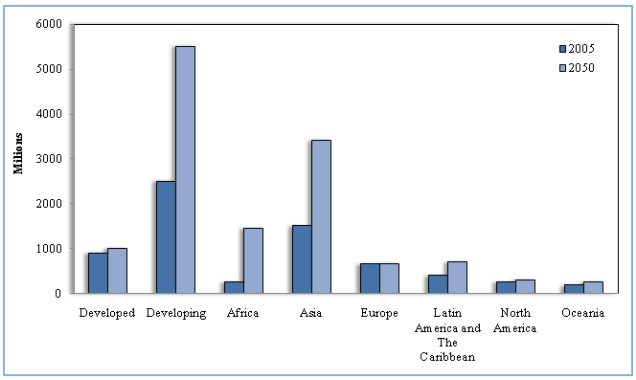

Fig. 2. Urban population by region, 2005 -2050 (UN-Habitat 2009)
Note: Asia does not include Japan.

3. Currently Proposed City's Planning

The planning can be defined as an integrated system for the planning processes to achieve the overall urban development as seen by D. Krueckeberg, and A. Silvers, (1974). Given the changing combination of population in the city, we need to establish a clear and effective planning include: the goal of design is to satisfy human needs and believed the process is often unconscious and usually occurs for a purpose better life as J. Lang, et al. assumed (1974). The Fig. 3. explain the proposed planning process life cycle.

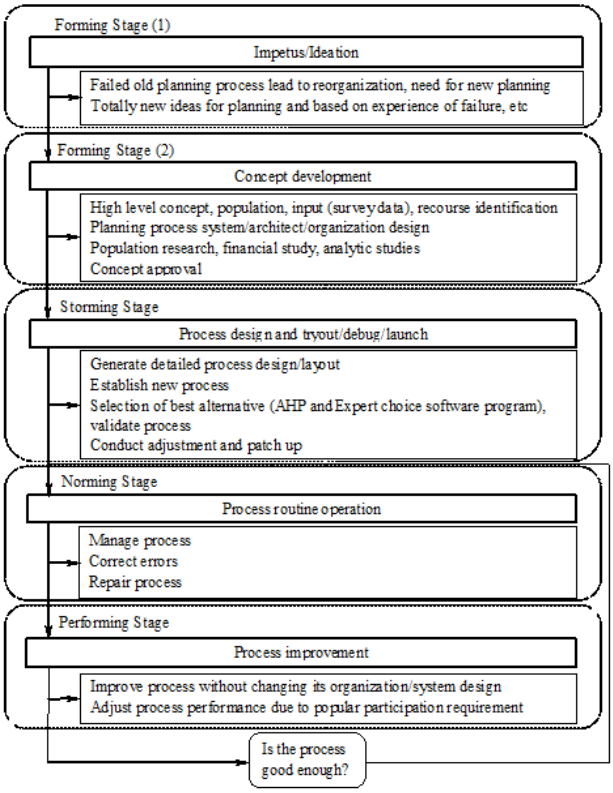

Fig. 3. Planning process life cycle. Stages 1–5: include forming, storming, norming and performing

When the planner is trying to make the city, live up to the needs of human beings, at the same time he also trying to obtain a sustainable city that organized so as to enable all its citizens to meet their own needs and to enhance their well-being without damaging the natural world or endangering the living conditions of other people, now or in the future (J. Burnett, 2007), Fig. 4. explain the brainstorming for the planner. In meeting the needs of the human community, development must be designed and built with an awareness of the interrelationships between natural, cultural, social, and economic resources both locally and globally, development must be limited to improving human life within the carrying capacity of resources and ecosystems, development must not be an economic activity fueling the belief in endless growth, thus the goal of sustainable development and sustainable building design is to create optimum relationships between people and their environments see A. Y. Rashed, and M. H. Soliman, (2001), More specifically, sustainable cities are an inevitability because "sustainable development offers real, lasting solutions that will strengthen our future" (A. Y. Rashed, and M. H. Soliman, , 2001).

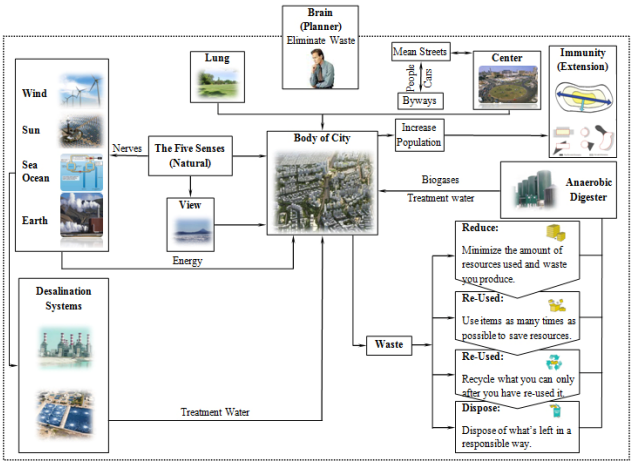

Fig. 4. Brainstorming for the planner

The progressive-era connection between planning, the environmental and "good social" shaped the culture in the city, the "Better City," melded with the humanitarian, aesthetic, and economic desires of City beautiful proponents and city boosters. The urban planning - zoning, community building schemes, slums clearance and restrictive covenants – are well documented (S. Lewthwaite, 2009). It has been argued that if schemes conform to these principles then they will be more popular and therefore more sustainable, if urban designers try to create schemes which they feel conform to these principles, why are development outcomes being interpreted and subsequently judged so differently (M. Biddulph, 2011).

Future cities, especially mega-cities, have to be understood as a dynamic system – a network that bridges many different scales, such as local, regional, and global scales. Since such a network comprises several dimensions, for example, social, cultural, and economic dimensions, it is necessary to connect active research, project management, and urban planning, as well as communication with the public, to establish a mutual vision or to map the desires of the involved participants (J. Halatsch, et al, 2010). Otherwise, leads to wastage of effort and money without clear results.

4. A Proposed Methodology "An Affective/Kansei City"

The urbanization process needs support to help reduce congestion costs (P. C. Annez, and R. M. Buckley) with two objectives in mind: (a) increasing the efficiency with which limited resources are directed to the needs of the poor and the vulnerable; and (b) improving their ability to cope with adverse (The World Bank, 2006).

New sustainable urban development strategies have to be elaborated. Especially long term, the quality of life in mega-cities has to be ensured. Planners, designers, officials, and even the public find it difficult to understand, to plan, and to communicate the effects of the persistently increasing demands regarding the use and the forms of energy, or the consumption of natural resources, as well as to meet the high expectations for transportation and communication infrastructures. Therefore, for large-scale planning projects, it is crucial to avoid missing links between experts and laymen (J. Halatsch, et al, 2010).

The humanitarian presence became a significant factor in the recent shaping and reshaping of the city's profile. Social capital represents the whole of personal relationships, the sense of belonging to organizations or places, the solidarity among individuals, the good will, the personal commitment, participation, etc.,.essential to the operation of complex organizations such as the city see R. Fistola (2011).

In this regard, the report of planning sustainable cities (2009) emphasized that have been achieved citizen participation processes of urban planning, and have been applied on a large scale non both local and national levels in developed countries, like the United States, Canada, Australia, and some European countries, either for Africa, Asia, did not exist, and if exists, it affects doesn't affect the planning process, due to the dominance of officials, technocrats and the owners of capital. The processes of participatory planning, contribute to more appropriate designs, and make great contributions by the population, which would improve the living conditions in low-income settlements (UN-Habitat, 2009).

For a successful fit between population and city, it was vital to understand the relationship between planning team and the needs of users. Population, city planner, and city form a triangle in sustainable urban planning. One difficulty is the translation between the popular participation languages and city planners, so we propose "An Affective/Kansei City", that Kansei Engineering is one of the forerunner methodologies which can help designers in designing products that provide a positive emotional response, and thus satisfying all the expectations required by the user (M. Vergara, et al). Here, populations are customers and the city consumer product in big-scale daily life.

The model proposed here, in this paper, is prototype of affective design for urban planning, as Shown in Fig. 5. the proposed affective design for urban planning system, comprises three modules, namely, Population Affect Acquisition (PAA) module, Urban Planning Concept

Categorization (PCC) and Affective Planning Decision (APD). The PAA and PCC Modules are performed concurrently.

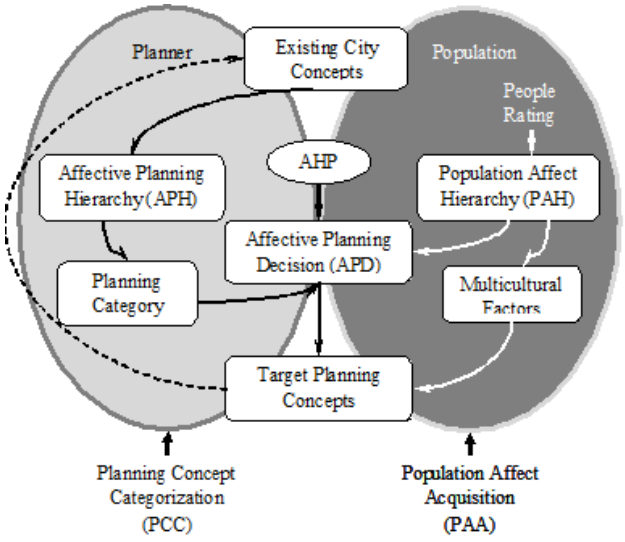

Fig. 5. The proposed affective design system for planning city

The PAA module is employed to work to embody the role of popular participation through the ratings different segments of the population, there high-income segments, medium, and low, in an affective urban planning process. In this module, popular participation called Population Affective Hierarchy (PAH) is established to organize affective population criteria through manually sorting to choose what useful planner during the planning process, in addition to identifying a set of concepts and organized within the group belong to one of the sub-tree to be formulated in hierarchy, to try improve the living conditions of rating of the population, see Fig. 6.

The PCC module includes, Affective Urban Planning Hierarchy (APH) Fig. 7. and Urban Planning Level from the region, neighborhood, city, country, etc.

After the completion of PAH and APH, APD module is coming to identify the inter relationships between affective population criteria and optimized planning alternatives, by using Analytic Hierarchy Process (AHP), see Fig. 8.

In the fact, the analytic hierarchy process (AHP) developed by Satty is one of the most widely applied multi-criteria decision-making techniques in the analysis (S.-S. Kim et al. 2005). A structured questionnaire using (AHP) was applied to determine the weights of three levels of hierarchy, Affective Planning Decision (APD), Population Affect Hierarchy (PAH) and Affective Planning Hierarchy (APH).

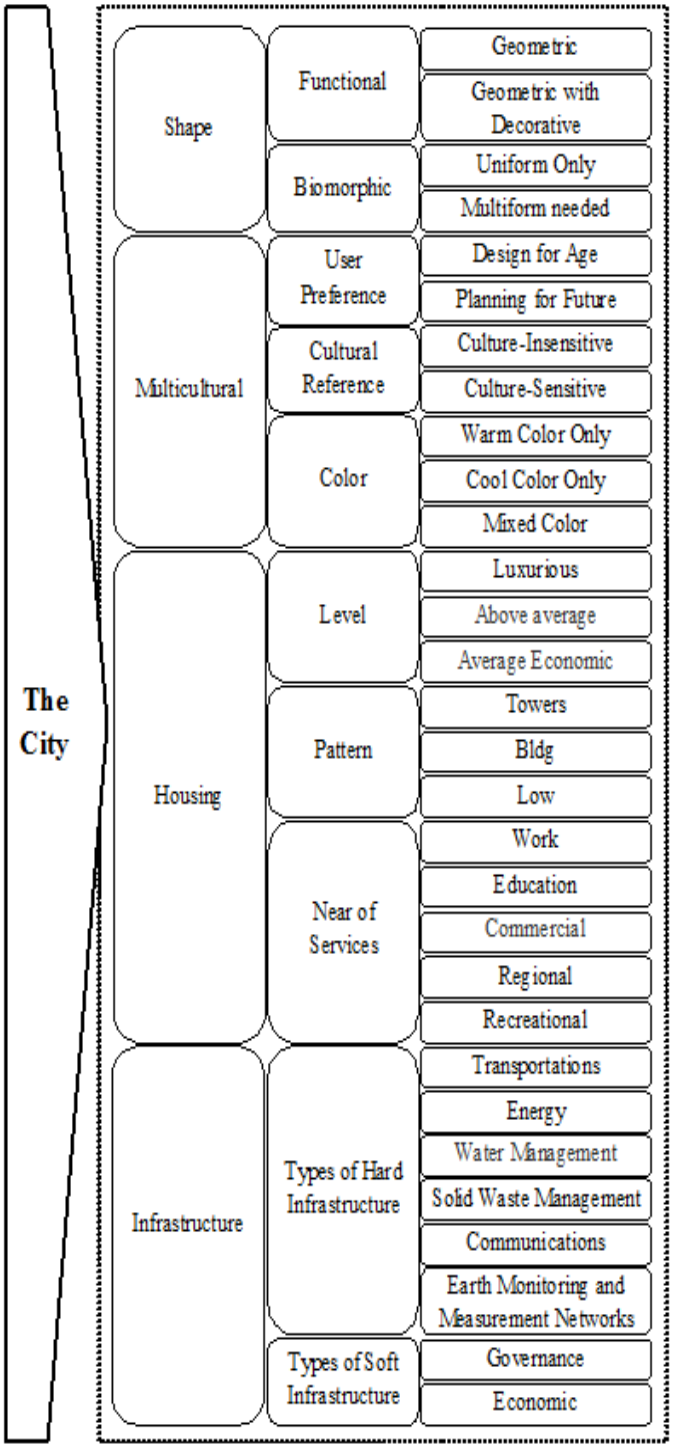

Fig. 6.Population affective hierarchy

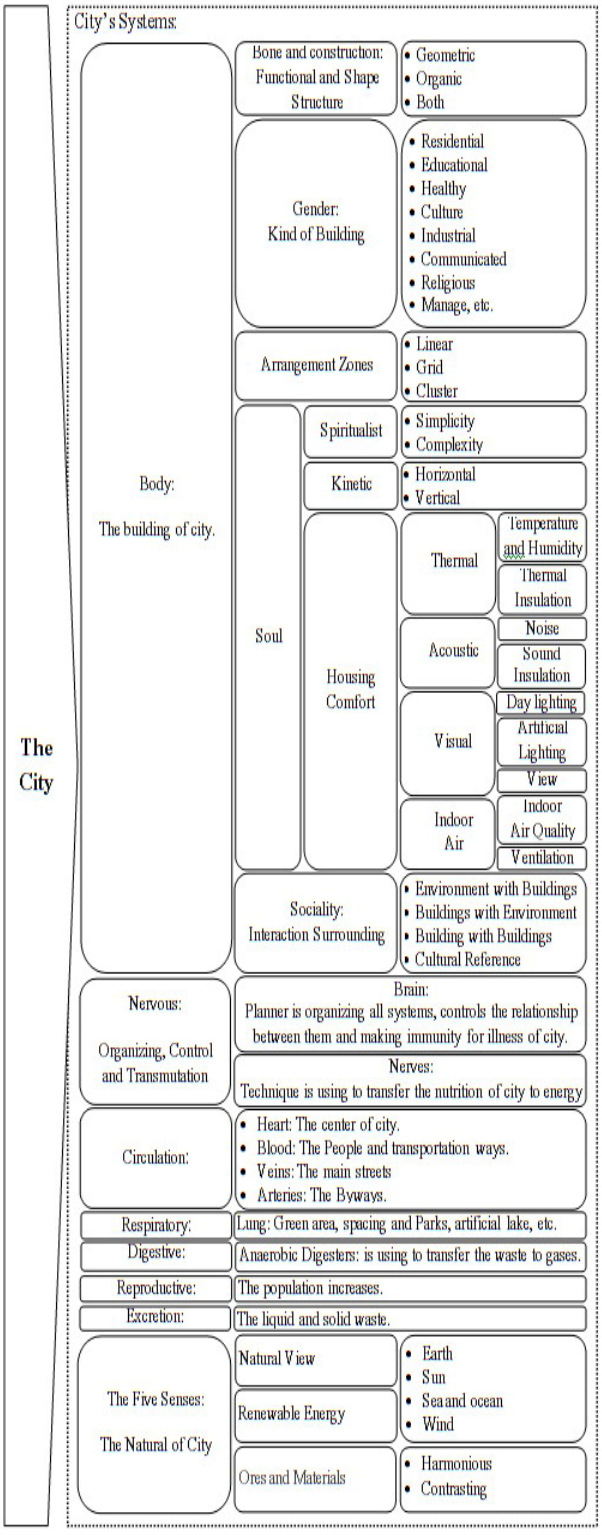

Fig. 7. Affective urban planning hierarchy

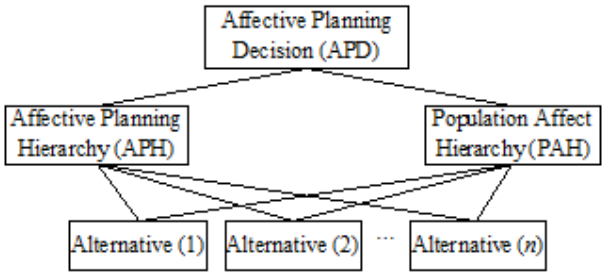

Fig. 8. A hierarchy of optimized affective planning

5. Conclusion

The concepts of sustainable into an urban development context, the sustainable cities are inherently an interdisciplinary issue. Where conjoining many disciplines: environmental studies, sociology, design, communication, urban planning, strategic management, architecture, and aesthetics, and also feedback from the general public, Through the above, the planner or group work, can successfully manages the planning process, through the basic stages, Forming, Storming, Norming and Performing, as shown in the model "Planning process life cycle", whether at the level of the region, neighborhood, city, country, etc.

The planning triangle (Population, city planner, and city) reminds us of the very indirect relationship between popular participation and city planner. By basing the Kansei Engineering, we find a common language between popular participation and city planner as well as generate useful analyses for establishing sustainability parameters. This proposal methodology offers the additional benefit of urban planning criteria, as shown in the model "An Affective/Kansei City". Then generate many of the ideas compares through AHP, and use Expert Choice software program for decision making, it was agreed that the new "city" would have to meet the needs of a wide range of end users. The Kanseis' City is achieving the target of sustainable urban planning that development of human life.

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