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TOWARDS PROTOTYPICAL SUSTAINABLE RESIDENTIAL COMMUNITIES FOR ISRAEL 2025 Proposal for Research and Educational Collaboration TAU-MIT

A. Purpose

To develop an ongoing research collaboration between Tel-Aviv University (TAU) Department of Geography and the Massachusetts Institute of Technology (MIT) School of Architecture and Planning in order to envision, plan, and design prototypical sustainable residential communities for Israel 2025.

To Create a collaborative framework with a global scope to encourage critical, independent, and interdisciplinary thinking and research in the fields of urban design, city development, and urban regeneration.

B. Goals of the collaborative framework

- To develop a collaborative framework that includes both developing cutting edge research and new methods of teaching in the field of urban design and development.
- To advance the technologies and practice of sustainable residential communities.
- To design and develop a community housing research project that strives for a 'zero net energy', carbon neutrality, ecologically responsive development - and that also incorporates information technologies to enhance the 'live-ability' and self reliance for the occupants.
- To develop new economic and technological applications to prototypical sustainable residential developments.

C. Context: Urban Development and Residential Communities in Israel

Israel's urban communities are facing demographic and environmental changes typical of many advanced and developing nations. A rapidly aging population, and changes in social habits have depopulated many of Israel's New Towns; this change has been accompanied with stigma and neglect, all representative of the relative inflexibility of the New Town form. In addition, all of the larger cities have residential areas which can be labeled distressed neighborhoods. Like many governments in Western European, the Israeli government has launched neighborhood-based urban policy to solve the problems of distressed neighborhoods. Since the mid 1970s, Israel's planning authority has conducted an appraisal of public housing, initiating a national urban rehabilitation project called *Shikum Schunot*. This project is aimed at improving the living conditions and the quality of life for residents in economically distressed areas, nurturing residents' responsibility for their neighborhood, and developing local leadership. Up until this point, the state had been responsible for generating and guiding national planning strategies, and, in turn, guiding the market. More recently, since the mid 90s, the Ministry of the Interior identified two key urban renewal strategies for selected sites: 1) demolition and redevelopment (*Pinui Binui*), and 2) densification and construction (*Ibui Binui*). The idea is to create non-government mandated market conditions that foster initiatives for developers to physically expand their construction projects.

These contemporary strategies and frameworks are working in conjunction with the *comprehensive national outline plan for construction, development and conservation* (NOP35), which requires future urban development in Israel to take place in existing settlements and in cities in particular. Israel is seen as an urban state, where most of its inhabitants (over 85%) currently live in cities and with 90% of inhabitants living in cities by the year 2020. As defined in the plan, "NOP 35 directs most of the anticipated development for the future generation to the urban texture. According to demand estimates for developed areas in the year 2020, some 73% of the addition of 600

km2 is designated for the urban texture and some 11% will be developed in the rural texture. Thus, some 84% of the additional developed area for 2020 will be outside the preservation oriented textures."

Yet, there are many limitations to the current strategies and it is clear that new strategies need to be initiated, in particular for cases of neighborhoods with a majority of low income families and low land values that do not attract for-profit developers.

Typical 1960s housing developments in Israel.

A. The Vision: Retrofitting Cities

The turn of the 21st century brings telling signs that the developed world may have reached the crest of a 150-year history of progress. For urban areas experiencing declining populations, this means that the key question in sustainable planning may be "in what ways can we not develop to make our community more sustainable?" Shrinking cities strategies offer a robust planning method that abandons the short-term visions of development that led to 1960's new towns and suburban sprawl. It also attempts to address the environment, community, and identity of place simultaneously in varying degrees of success. In Israel many towns have exposed an inability to maintain their open space and attract residents, and may be model towns for a shrinking cities approach to sustainable development. The project seeks to set into reverse the monotonous redundancy of suburban and new town planning, and to replace it with distinct urban communities where people will choose to live.

The diagram and list below includes the major themes of such related research into new models for design and development:

- **Energy systems: generation, efficiency and distribution**

Intent Develop the framework for ambitious goals of how and where energy is generated and used at the community and individual house scale. Develop ideas, design strategies and quantifiable parameters for integrating locally based energy systems with the design of individual houses and housing clusters, neighborhoods, site planning and infrastructure as well as future mobility. Consider how to minimize the use of energy through construction and passive design strategies to the extent possible.

- **Site and Land**

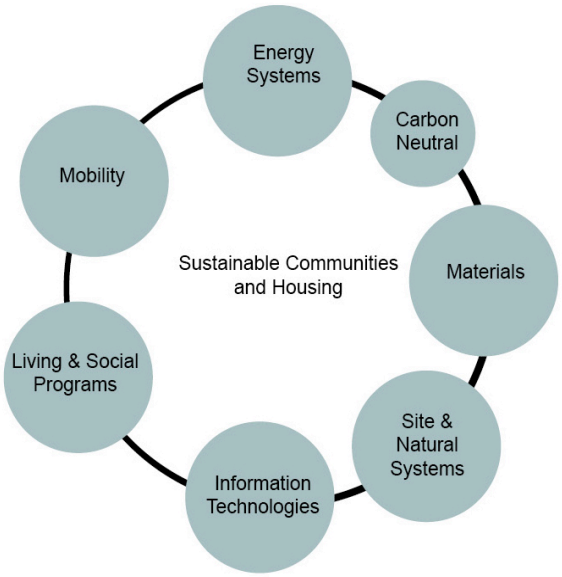
Intent Develop ideas for the physical reorganization of a site to enhance the concepts of ecological development and to set the context for the planning and design of areas and centers for new housing. Develop options for rethinking the flow and movement of people, how mobility would work, and as a result identify new areas and typologies of housing. Establish priorities and design objectives that rethink critical site systems: water, energy, mobility, access systems, landscape and habitat.

- **Housing**

Intent Develop a set of ideas and visions on typologies for housing. Generate bottom up and top down strategies for different densities of housing (low, medium, and high), at the scale of the house and the neighborhood. Typologies will include consideration of orientation and climate, social and economic issues (live / work, lifestyles, demographic mix etc) as well as new technologies in the house environment.

- **Media and Digital Life**

Intent: Develop and integrate new media and digital interfaces for the neighborhoods we will plan and design. Research and investigate visual models of environmental, transportation, and other proposed features, and make the design impacts of planning accessible in real time thus allowing for more efficient management. Provide opportunities to invent and deploy new ubiquitous digital tools. These will characterized by new forms of interactions and delivery systems that seamlessly interact with one another in a multiplicity of ways. Some of these may include Human-Computer Interactions (HCI), Augmented Reality (AR) and bottom-up, internet delivery models such as Semantic Web, and Web GIS.



Themes and framework diagram