

# **SUSTAINABILITY MEETS AFFORDABILITY TO ENSURE ACCESSIBILITY TO NEW URBAN HOUSING PROJECTS IN HANOI (VIETNAM)**

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## **Abstract**

*Today Vietnam is facing two knotty problems in its urbanization: ecology and economy. The former issue is global and the latter is specific in developing countries where the majority of the urban population is the low-income group and where many building projects are either suspended or partially implemented because of the insufficient financial resources. In the capital city of Hanoi, urban housing development is an urgent and herculean task with regard to the poor living quality in old quarters, the continual influx of immigrants, the expansion of urban sprawls and the impact of those areas on the environment, the infrastructure and the society.*

*In terms of housing there are two key factors that share equal importance: sustainability and affordability. Due to the financial difficulty most people nowadays purchase houses mainly in consideration of fair pricing. Other essential requirements such as location, environment, landscape, esthetics, building quality, availability of services, etc. are not adequately taken into account. As a matter of fact, if home owners are not satisfied, they will sooner or later move out of their present homes and the search for housing will recommence with house pricing as a primary motivator. Sustainability as the ultimate goal will remain “castles in the air” as long as the question of how to afford sustainable housing has yet to be answered.*

*It is therefore necessary to reinvestigate urban housing three times: firstly top-down in perspective of the government, secondly bottom-up in view of house seekers and finally in consideration of the roles that local administrative and professional organizations play. Affordability should form a unity with housing and a symbiosis with sustainability, so that “How much does it cost?” will not be the first question as well as the last barrier on the way to approach sustainable housing as a new living concept.*

## **Key words**

*Ecology, economy, urban housing, living quality, sustainability, low-income group, affordability, accessibility, housing policy, project management*

The open-door policy and its twin sister - the free-market economy - have been the guiding principles in Vietnam in excess of 20 years. Like other developing countries, during this first period, Vietnam has to deal with many environmental challenges. Environment, or ecology in a wider context, is organically connected to human life but this verity has often been ignored. There is a hard-to-accept paradox that the faster the economy develops and the larger the city grows, the lower the living quality will become. The ongoing global climate change and the escalating fuel, energy and electricity pricing make “ecology” increasingly more urgent in comparison with “economy” in almost every socio-economic sector. In building, “ecology” has been conceptualized in ecological and/or sustainable architecture. “Housing quality”, or more generally “living quality”, is a relatively complex term which should not be limited to simplistic or understood standards, like having a comfortable house with so much green and open space or being located on main streets in proximity with abundant shopping facilities and other social services. In fact, the new definition of “housing quality” covers a broad spectrum of criteria, particularly taking into account environmental factors and laying special emphasis on social sustainability as the highest level of the future urban development.

A recent assessment using the comprehensive sustainability criteria developed by the German Institute of Urban Planning and Sociology and applied to a typical residential area in Hanoi with 1,920 inhabitants living in 475 households, as demonstrated in Table 1 below, has proven that the living quality there is substandard.

Table 1: Assessment of living quality in a typical living quarter in Hanoi [1] [2]

Basic information		Group 1		Group 2		Group 3	
Living quarter Bach Khoa - Hai Ba Trung District		Villa		Row-house		Apartment	
Construction time		2000s		1990s		1980s	
Number of households		16		189		270	
Number of inhabitants (as of February 2009)		66		770		1,084	
No.	Categories/Criteria	Ev.	Ma.	Ev.	Ma.	Ev.	Ma.
<b>Traffic</b>							
01	Traffic flow	P	0	P	0	P	0
02	Bike paths and footways separated from cars	P	0	P	0	P	0
03	Parking lots	A	2	N	1	P	0
04	Accessibility for inhabitants	G	3	A	2	N	1
05	Accessibility for service vehicles (ambulance, fire brigade, house moving service, etc.)	A	2	P	0	P	0
06	Availability of (and accessibility to) public transport systems	N	1	N	1	N	1
07	Use of public transport systems	P	0	N	1	N	1
08	Infrastructure (electricity, water, cable, etc.)	A	2	N	1	P	0
<b>Landscape</b>							
09	Townscape (facades and silhouette)	A	2	P	0	P	0
10	Connection between house groups	A	2	N	1	N	1
11	Building density and distance between houses	A	2	P	0	N	1

	<b>Open spaces and public places</b>						
12	Private space (garden, terrace, loggia, etc.)	A	2	N	1	P	0
13	Semi-public places (for a group of houses)	A	2	P	0	P	0
14	Open spaces and public places with facilities	N	1	N	1	N	1
15	Public buildings with equipment and facilities	P	0	P	0	P	0
16	Everyday life services including shopping facilities, health care, welfare and insurance	A	2	A	2	A	2
17	Leisure attractions (culture, sport, etc.)	P	0	P	0	P	0
	<b>Energy</b>						
18	Use of renewable energy	N	1	N	1	P	0
19	Day lighting	G	3	N	1	N	1
20	Ventilation	A	2	N	1	N	1
21	Heating and cooling	A	2	N	1	P	0
22	House orientation	A	2	N	1	N	1
23	Sun shading	A	2	N	1	N	1
24	Indoor air quality plus thermal comfort	G	3	A	2	N	1
	<b>Water</b>						
25	Supplying and saving of drinking water	N	1	N	1	P	0
26	Use of rain water	P	0	P	0	P	0
27	Reuse of grey water	P	0	P	0	P	0
28	Waste water and drainage system	A	2	A	2	P	0
29	Low sealing grade of the earth/ground surface	N	1	P	0	P	0
	<b>Building materials and facilities</b>						
30	Use of pollutant-free building materials	A	2	N	1	P	0
31	Construction methods and facilities	A	2	N	1	P	0
32	Reuse of waste building materials	P	0	P	0	P	0
	<b>Waste</b>						
33	Waste sorting	P	0	P	0	P	0
34	Waste collection and transportation	N	1	N	1	N	1
35	Recycling and reuse possibility	P	0	P	0	P	0
	<b>Social aspects</b>						
36	Awareness of environmental protection	N	1	N	1	N	1
37	Participation of citizens in communal work	N	1	N	1	N	1
38	Neighborhood	N	1	N	1	N	1
39	Security	A	2	N	1	P	0
40	Project and construction management	N	1	P	0	P	0
	Total value		<b>53</b>		<b>29</b>		<b>17</b>
	Average value		<b>1.33</b>		<b>0.73</b>		<b>0.43</b>

#### Glossary

Ev: Evaluating	G: Good	A: Adequate	N: Neutral	P: Problematic
Ma: Marking	3 points	2 points	1 point	0 point

Before a city-wide survey can be conducted to achieve an overall picture of living conditions and quality of life there, it is possible to do case-study research within a typical living quarter. The urban housing structure in Hanoi and other Vietnamese cities consists of three main patterns: villa, row-house and multi-apartment block. Each pattern has its own characteristics and quality standards and should therefore be evaluated in separate categories. In the category villa, for example, where the living quality index is the best of all, the average value is only 1.33, falling considerably behind the adequate level of 2.00 and significantly under the good level of 3.00. In a new housing project (Settlement Linh Dam - Thanh Tri District) planned and built in 2000 - 2002 consistent with the new standards of the Ministry of Construction, and by applying the same assessment criteria, the living quality index there is 1.70 [3], better but not yet satisfactory. It is because those designs fail to comply with many of the fundamental criteria ranging from #18 to #40. Thus, a truly high living quality index cannot go without environmental factors or sustainability indicators, no matter how attractive that planning looks or how well-furnished that house may be. In a specified term, for instance #24, the indoor air quality and thermal comfort should be based on natural conditions, not maintained with technical solutions, which is achievable through intelligent designs.

In fact, sustainable development is an interdisciplinary science. In architecture, sustainability can only be attained, or in other words, the living quality can only be enhanced, when all the necessary solutions and methods are successfully and simultaneously put into practice. It is notable that most of the above-listed 40 criteria are related to social issues to a certain degree, even those which seem purely technical or scientific like “use of renewable energy” and “house orientation”. In terms of using renewable energy, aside from financial consideration, it also involves social awareness of the advantages of solar and green architecture. It requires individual willingness as well as communal readiness to co-operate in the action program (the local Agenda 21) for the common goals. Regarding house orientation, aside from the benefit of using solar energy and making use of the cool summer wind, it refers to spiritual and religious factors such as the destiny and prosperity of the house owner. These are largely believed and play a vital role in building and purchasing a house in Vietnam. The difficulty in achieving sustainability lies in the economic and social aspects of the matter, rather than in technologies, given that environmental building technologies work on the same principle throughout and are transferrable in the era of globalization and collaboration.

According to the latest definition of the Vietnamese Government, low-income families in cities are those whose income is less than 90 USD per capita per month (3 USD per day or 1,080 USD per year) [4]. Those earning more than 600 USD per capita per month (20 USD per day or 7,200 USD per year) could be classified as high-income people who have responsibility to pay high individual income taxes [5]. The middle class stands, of course, in between. Income levels always influence housing options. Most high-income families buy or build their own villas while some prefer luxury flats in multi-family buildings. Middle-class families often choose row-houses and some like flats as an alternative. The low-income group, outside slums, has no choice other than popular high-rise apartments. In eco-housing projects, these options will not change so much because of the rising level of affordability.

In supposition, consider that the sustainability in urban housing has been technically achieved, it will then go to the question of how to supply eco-housing to all residents. There is no use planning an eco-town if it is only reserved for or open to a small number of people. That sort of eco-town may be more of a compound or a fortress than a neighbor-friendly place to live, yet still surrounded and polluted by slums. The remainder of the society, i.e. the middle class and the low-income group, would have virtually no opportunity. All people who were asked in the survey stated that their wish was to live in high-grade houses and/or flats. The problem is that very few of them can afford the intensive construction cost which is fixed at 1,300 USD/m<sup>2</sup> (cost level IIIa - see Figure 3) [6] - 3.25 times higher than the normal and actual building cost at 400 USD/m<sup>2</sup> (cost level I) [7]. It is also calculated by an expert that a middle-class four-member family with a total annual income of 6,000 USD (1,500 USD per person x 4 people) would be capable of purchasing a 100 m<sup>2</sup> normal-grade apartment in the suburbs of Hanoi after 20 years and a same-area high-grade apartment there after 40 years, excluding factors such as the inflation rate, sudden pitch in the real estate market or any other income of fortune [8]. To own the same flat in downtown areas or an eco-flat elsewhere it would be a far-away dream for such families and almost unreal for lower-income families, unless the government develops a more favorable housing and funding policy. The ambitious aim of the new housing concept - towards social sustainability - is that the middle class and the low-income group will also have access to environment-friendly housing projects. To those people the house pricing is as decisive as the house quality. "Affordability of sustainability" has therefore become a sub-concept. This so-called sub-concept is, however, a crucial point and even a harder nut to crack in Vietnam.

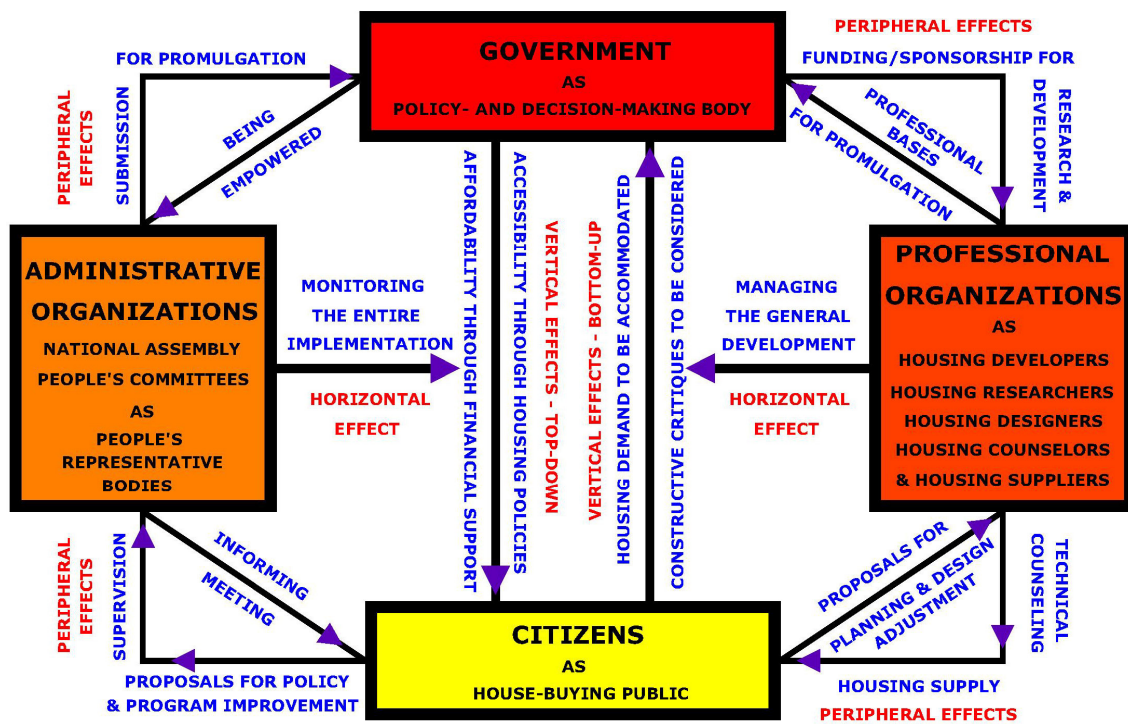


Figure 1: Structure and operation of the new housing mechanism for Vietnamese cities [9]

The sole purpose of this paradigm is to guarantee a smooth operation and easy accessibility to eco-housing projects for all social groups with focus on and priority given to the low-income community. The four primary parties involved are: the government, the citizens, professional organizations and administrative organizations. The new type of urban housing structure and project management is established on a multi-directional monitoring network to ensure the transparency and effectiveness of sustainable-but-affordable housing. Within this framework, the current housing should be reinvestigated both vertically and horizontally.

## **Vertical effects**

Firstly, in perspective of the government (top-down), the role of the government should be put at the level of macro-instructions through:

- Housing development strategy towards sustainability
- Housing policy towards accessibility
- Financial housing assistance program towards affordability

There is an immense public demand for high-quality housing for the government to cope with and to accommodate. 54% of 3.2 million Hanoians as of mid 2005 were reported to be living in poor housing conditions [10]. Based on the Ministry of Construction's new housing standard (20 m<sup>2</sup> per person) calculated until 2020, the requirement would be about 34.6 million m<sup>2</sup> of new housing available within 15 years - or 2.3 million m<sup>2</sup> each year - to sustain the demand. It equates to a doubling of the present house-building rate of only 1.2 million m<sup>2</sup> a year [11]. For the estimated 120,000 immigrants rushing to Hanoi each year [12] a supply of 2.4 million m<sup>2</sup> housing should be added annually. In total, about 4.7 million m<sup>2</sup> are to be built annually until 2020 under the new metropolitan housing program.

Every decision and every policy of the government must be timely and careful. With reference to Vietnam's political institution, any error of the government, should it occur in urban housing, would become systematic. Reconstruction as the remedy for this error is both time-consuming and costly. It would place a heavy burden on the economy and set back the course to sustainability for years. For example, the social housing and resettlement policy has been determined to be the central part of the national housing development strategy (2000 - 2020) and aimed at the lowest-income groups. Unfortunately, it was not successful from the start. Low-income people, generally, are not fastidious people but they did complain about housing conditions in those resettlements. Sometimes the quality of life there was worse than what they had previously experienced. Having been neither refunded nor provided with new housing, they had to sell off their homes at a cost of great disappointment and also with prejudice against social housing. Social housing is generally a good initiative and may very well be necessary for many more years. Ecological architecture can be combined with social housing, revitalize it and make it more accessible. "Accessible", here, is understood to mean "reasonable" in price and "popular" or "universal" in application. Otherwise, this sort of grand plan would fail again because it would be attainable only by high-income people - even if they comprised as much as one fifth or one fourth of the urban population of Hanoi.



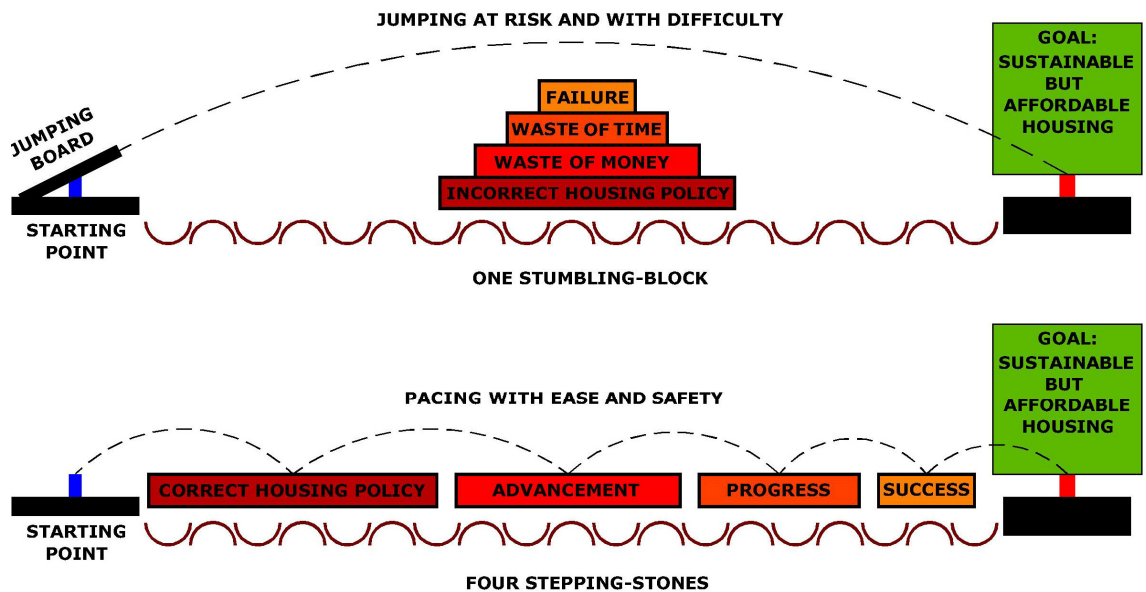


Figure 2: Wrong-doing and right-making in urban housing policy [13]

Sustainable development in all socio-economic activities has nowadays been emphasized as a “to-be” or “not-to-be” question. Similarly, sustainable urban housing is indispensable and the implementation of this new concept is only a question of time. But time and tide wait for no man. This budding tendency is being prevented by numerous social problems and economic difficulties inland. Since Vietnam joined the World Trade Organization (WTO) in 2007, there have been huge challenges in political and constitutional issues to face during its post-WTO integration. In addition, the global economic and financial crisis has had a negative effect on the going-green process in Vietnam, despite three consecutive multi-billion-dollar stimulus bills within seven months (from mid October 2008 to early May 2009) from the government. The house building industry is not an exception. Much of the housing market in Hanoi has been frozen since June/July 2008. The price of housing, as a great concern for many people, has now fallen by 25 - 40% in most high-quality housing projects throughout the city [14] and it continues to decrease as the economic slump still shows no sign of abating or stopping in 2009. As a result, this is a rare and perhaps unique opportunity for the public to buy a well-built house and/or flat at its original price. Nevertheless, this is very hard (or even impossible) for them on account of the housing speculation arising from the shortcomings of the current housing policy and weaknesses of the housing project management.

The reality of urban planning and building in Vietnam has shown that the implementation of the government’s policies often gets bogged down or miscarried in its subordinate, bulky, patchy and bureaucratic machinery which causes another great obstruction for the public accessibility. Hence a perestroika of the national administrative system with a more effective planning and managing instrument has been put forward as a prerequisite for a healthier (i.e. more sustainable, accessible and affordable) urban housing environment.

### **A new kind of subsidy - why not?**

Subsidy was the core of the government's housing policy in the socialist centralized plan economy. Under that scheme, the housing shortage problem was basically solved twice: once during the first five-year economic plan (1961 - 1965) when the city was industrialized on a large scale and then during the postwar years (1976 - 1986) for rebuilding the areas destroyed by the air raids of the U.S Air Forces. During that ten-year period hundreds of thousands of people needed immediate accommodation. Most of them were supported by the government to live in newly-built respectable homes, either free for use based on certain conditions such as participating in obligatory non-profit activities on weekends and/or working extra hours during the week. Part of the subsidy was deducted from their salary or wages. That generous policy was abandoned in early 1987 just as the free-market economy commenced.

Over two decades after the end of the subsidized housing policy, it is noted that the need for decent homes in the 1960's and the 1970's and the demand for eco-houses in the early part of the 21st century, by nature, are almost the same when compared. So is the common goal of the construction work: both for the purpose of smarter housing. The old term "smarter housing" simply meant a larger home with better furniture, more electricity and an additional supply of drinking water. The new term "smarter housing" is more sophisticated: not only environment-friendly but also socially sustainable. Equally important and highly topical is the affordability factor. In the government's position, affordable housing should be made available again through a new subsidy policy for those who need financial aid to secure an ecological dwelling commensurate with their income levels.

### **Experience from Singapore**

With 4.9 million inhabitants [15], Singapore is proud of its prosperous society and one of the world's finest social welfare policies. Another reason for choosing Singapore as a case study is that its population size is approximate and its culture is similar to those of Hanoi. The big success in Singapore's housing policy is demonstrated in the very high percentage of population (84%) [16] enjoying well-designed apartments in the housing projects allocated and managed by the Housing Development Board (HDB). These projects are inclusive of such good public utilities as educational, cultural, recreational and commercial services. Back in 1975, when the scheme was launched by the government, the ratio of the high-quality house price / average personal income of the Singaporean resident equated to about 90/1 [17] - denoting a 35 or 40-year dream of a high-grade apartment for a four-member family to strive for - very similar to that in Hanoi today. The backbone of the financial aid program that the Singaporean Government has applied so far - and a valuable lesson for Hanoi to learn - is a transparent supply-and-support housing policy in line with effective management tools (well-drafted law, strict eligibility criteria, clear proof of income, detailed accompanying requirements of responsibility, etc.). Initially, under this scheme, all house seekers moved in as house tenants. Then, as soon as they met all the HDB requirements, their ownership was fully acknowledged and legally protected by the state. With this consistent policy and thanks to the dramatic growth of the Singaporean economy as one of the Four Asian Tigers, the housing demand of 2.6 million people [18] had been satisfied by 1985 - within one decade.



## Which scenario for Vietnam?

In Vietnam, for political reasons, the state's centralized urban housing system can remain. However, the government should promulgate a new housing policy which enables low-income people to buy or build houses at lower costs according to the motto "Secure residence first - pay back later", similar to the policy that Singapore executed well over 30 years ago. In the free-market economy, the governmental subvention should take the form of an assistance program in which house buyers, in addition to their own housing budgets, can be granted loans from the state banks or state-owned credit funds at a lower interest rate together with extended payback terms. A classic example might be with a middle-class nuclear family that already has in hand 50% of the cash they need to upgrade their modest home into a modern eco-house on its own plot of land. The remaining amount will come from a bank, as noted above, lent on the basis of the mortgage of the family's land use right acknowledgement. Instead of paying pack within 5 years and being charged a privileged long-term interest rate at 4% per year [19] as it is now applied, the family should be allowed to pay it back step by step within 15 or 20 years, or longer. The reimbursement with the corresponding interest rate each year will be reduced to one third to one fourth, or possibly less than that - falling somewhere within the family's financial capability comprising its partial income and considerable savings derived from the eco-house. These savings will become much larger after the break-even point - normally in the second half of that 15 to 20-year period and every year thereafter.

Secondly, from the angle of the citizens (bottom-up), the largest concerns are:

- High price
- Difficult access
- Little or no support/assistance

In their points of view, the most essential features of a worthy-of-living quarter are:

- + Safe (not only security but also low traffic flows), quiet, clean and green
- + Comfortable accommodation
- + Well-connected to regional main road(s) and to the district center(s)
- + Short walk to school for children and to work for parents
- + Closeness of daily necessary services and facilities
- + Good neighborhood
- + Attractive social/communal activities/events

The Vietnamese tend to choose a permanent residence. The procurement of a house is traditionally one of the three most important events in their lives, therefore they always give their utmost effort in order to buy or build it to their satisfaction. If they are short on funds, i.e. 15 - 25% of the required sum in most cases, it is customary for them to ask their relatives and sometimes very close friends for assistance before going to the bank. This mode of borrowing and lending is preferred and more popular in Vietnam than in the western world because their family relationships and/or long-time intimate friendships are certain proof of trust and the subsequent interest rate in this scenario is zero.

## The first question as well as the last barrier

“How much does it (an eco-house or eco-flat) cost?” is a frequently asked question. The new building quality measured to international standards is not in doubt. Sustainable housing is obviously more expensive than normal housing in light of initial investments in advanced building techniques and technologies. The cost, for example of a world-class passive house built in Germany or Austria, may vary between 1,400 and 1,900 EUR/m<sup>2</sup> [20], or from 1,900 to 2,600 USD/m<sup>2</sup> [21]. Consider, for example, the minimum cost at 1,900 USD/m<sup>2</sup> (cost level IV - see Figure 3). With transferred techniques and “made in Vietnam” technologies an eco-house could be 30% less expensive [22] - possibly cut down to 1,300 USD/m<sup>2</sup> (cost level IIIb). 1,300 USD/m<sup>2</sup> is also the irrational building cost that house buyers have to bear (cost level IIIa), usually 30% and sometimes 40% higher than the original house price which is approximately fixed at 900 USD/m<sup>2</sup> only [23]. Such a high price has been raised either by the building contractors or by speculators. In principle, this high cost is negotiable for a reduction but really not so much - only a few percentage points. In a well-managed and well-regulated housing market, housing speculation will be eliminated. At the same house pricing level of 1,300 USD/m<sup>2</sup>, a high-income family can now purchase a much better residence which has been ecologically designed. Having already paid the original price at 900 USD/m<sup>2</sup> for a high-grade apartment, a middle-class family could upgrade the housing standard to an eco-flat which is worth an investment by using the state’s bank loan service available or the financial support from a well-acquainted person as analyzed above.

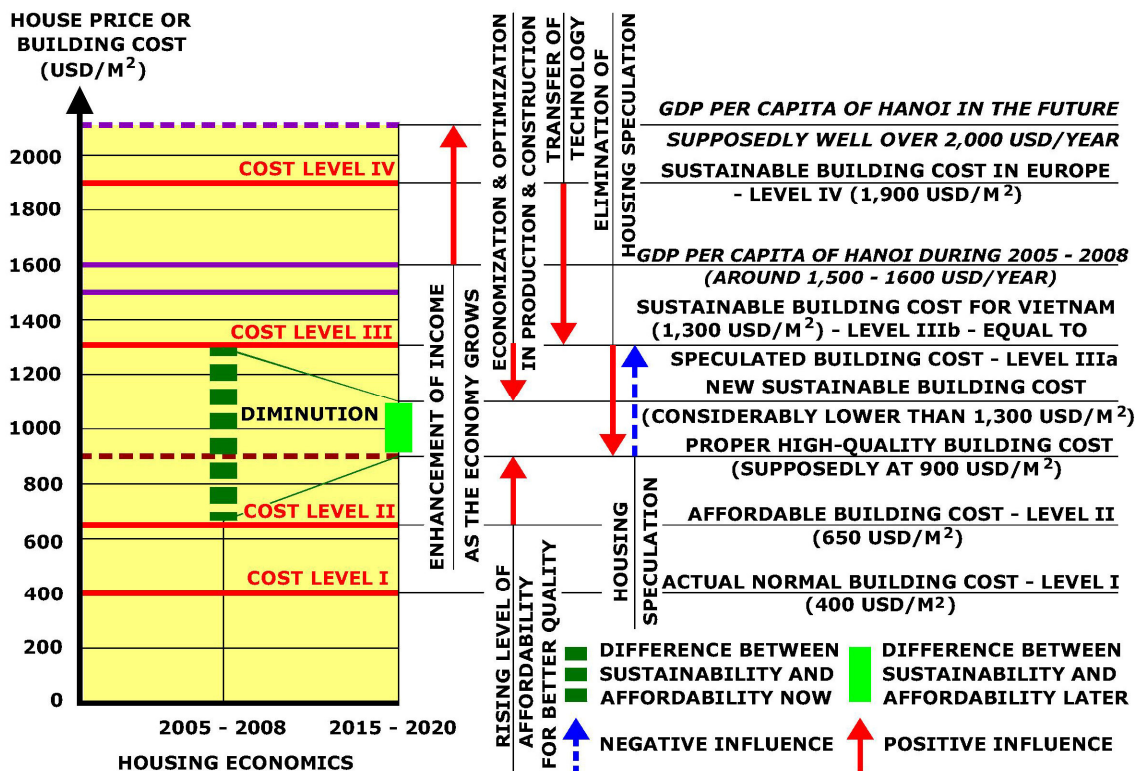


Figure 3: Building costs with levels of income and affordability in urban housing [24]

Finance or building cost is of no consequence for rich people. Some have the immediate ability to pay the cost at 2,000 USD/m<sup>2</sup> or more for a deluxe villa or apartment assuming that the construction quality of their homes is as true as marketed and/or advertised. In general, the middle-class people accept the higher cost as opposed to the normal building cost at 400 USD/m<sup>2</sup> for a better quality - 83% of them find 650 USD/m<sup>2</sup> affordable [25] (cost level II - see Figure 3). Those people, with their savings and incomes, can instantly afford 50% of the sustainable housing cost at 1,300 USD/m<sup>2</sup>. The General Housing Assistance Program (GHAP) will help them cover the other half of the building cost (or housing price). Low-income people do not have the spending power of the middle class. They could afford only 10 or 20% of the total housing price and find their house purchasing viability through the financial aid particularly aimed at them - the Special Social Housing Assistance Fund (SSHAF) of the government. The tremendous social costs of the pollution treatment caused by the old housing policy could now be economized and used for this purpose.

In the future, the difference between level II and level III will diminish. It means more and more people will be able to afford and secure housing on their own because the economy will improve (i.e. the GDP per capita will increase), and if the sustainable housing price is still maintained at 1,300 USD/m<sup>2</sup> with the government's controlling policies and regulating measures. On the other hand, the building cost may be further reduced through a number of economizing methods in production and construction which have not yet been applied.

In the conventional planning process, the housing structure is always decided by authorities in collaboration with urban planners and designers. Residents must accept what is offered. In reality, the decision made by authorities may not meet the housing demand of the public. For instance, the housing structure per household of a resettlement project is planned by a housing institute as follows: 50% for apartments, 30% for row-houses and 20% for villas. But in fact it should be 60% - 30% - 10% respectively, according to the housing options and affordability of the local residents. These two structures coincide only in row-house category. Nobody wants to move out, so the apartments in the plan of the authorities are 10% insufficient and the villas are 10% redundant in comparison to the real housing demand of the local residents. This circumstance can be more complicated in fact, happening more often and together with the housing speculation contributing to the chronic shortage of housing in big cities, even when the housing capacity per place there exceeds the number of households.

In order to avoid such an awkward situation, local residents must discuss housing problems in an open forum or at a round-table conference with planning officers and building consultants. They have the right to claim better housing and are responsible to provide authorities and professionals with basic (and accurate) information such as housing options, family income levels, affordability, etc. In return they should be provided with an appropriate housing structure. In case of a vast difference between opinions and solutions, for example too many villas or multi-storey apartments, then balancing factors such as land use, townscape, solar gain, ventilation, bioclimatic comfort, etc. will be reconsidered one by one for an adjustment of the housing structure. Moreover, the active participation of the public in planning and housing can go through with their constructive critiques. A sociological study undertaken in March 2009 has revealed the following reasons for difficult access to housing projects:

- + The government's problematic housing policy: 56% (of the feedback opinions)
- + High price, complicated administrative procedure and housing speculation: 29%
- + Lack of planning and housing information: 12%
- + Others: 3% [26]

These statistics may be useful for the state's officials and administrative staff to alter or renew their policies. The simplicity of the administrative formalities (the well-known one-stamp policy) and the competence of the local people's committee in dealing with the affairs of public interest have lately become two new essential criteria of a worth-of-living quarter.

## **Horizontal effects**

There are two horizontal effects that make a substantial contribution to the development and management of sustainable-but-affordable urban housing: from professional and from administrative organizations.

Professional organizations comprise the Ministry of Construction with its dependants: Institute of Architectural Research, Institute of Town and Country Planning, Urban Housing Unit and consultant corporations; the Ministry of Science, Technology and Environment and its dependant - Institute of Building Science and Technology; the Ministry of Education and Training and its dependants: architecture faculties and planning schools; with Vietnamese Association of Architects and Institute of Social Sciences and Humanities as two independent academic institutions. Their roles and activities can be proposed and summarized in Table 2.

These organizations help the government promulgate a general development strategy and then a detailed housing policy from their specialist points of view. Within their own scope of expertise and in collaboration, they develop sustainable architecture both theoretically and practically, counsel a variety of clients and supply new housing to millions of inhabitants.

Seeing that affordability is an integral part and a key factor in sustainability, it is necessary to minimize the sustainable building costs as the first wise step before the government's assistance housing program begins. New ecological technologies and latest products in environmental building such as PV-panels, solar collectors for warm water, triple glazed windows with  $U\text{-value} = 2.0 \text{ W/m}^2\text{K}$  and  $G\text{-value} \leq 0.8$ , etc., once transferred and manufactured in Vietnam, will lead to an enormous decrease in the house price, already estimated to be -30%. Environment-friendly building materials should be available in an electronic databank and/or catalog. For low-carbon and passive houses (with the energy consumption standard less than  $15 \text{ kWh/m}^2\text{a}$ ), it is possible to standardize and computerize them in a variety of forms and sizes. The next step should be to optimize the production and construction methods: modularization and prefabrication techniques can be used in the mass production of building components, so that expenditures are economized and the housing construction is accelerated. In combination, the sustainable building costs will be further reduced, considerably lower than  $1,300 \text{ USD/m}^2$ .

Table 2: Professional organizations and their contributions to new urban housing [27]

Organizations	Roles and activities
Ministry of Construction and its dependants: + <i>Institute of Town and Country Planning</i> + <i>Urban Housing Unit</i> + <i>Consultant corporations</i> + <i>Institute of Architectural Research</i>	+ Helping the Government compose new housing policies + Developing and establishing new housing standards + Evaluating, examining and controlling housing quality + Approving, distributing and managing housing projects + Supplying high-quality but reasonable-price housing + Regulating housing supply and demand in the market + Conducting architectural and urban sociological studies (with Vietnamese Association of Architects and Institute of Social Sciences and Humanities)
Ministry of Science, Technology and Environment: <i>Institute of Building Science and Technology</i>	+ Importing state-of-the-art sustainable techniques and cutting-edge building technologies + Applying those techniques and technologies to urban housing in Vietnam
Ministry of Education and Training and its dependants: <i>Faculties and Schools of Architecture and Planning</i>	+ Training and disseminating knowledge of ecological architecture and sustainable housing + Undertaking scientific research with, and sponsored by, energy and other sustainability-related industries
Vietnam Association of Architects and its dependants: <i>Architectural offices</i>	+ Conducting architectural research + Providing standard sustainable housing designs + Consulting clients (both collectives and individuals)
Institute of Social Sciences and Humanities	+ Conducting urban sociological research in housing (with Institute of Architectural Research)

Administrative organizations comprise the National Assembly and people’s committees. Their first and foremost task in housing is to monitor the entire implementation of the government’s housing policies. They work on behalf of and once again for the sake of the people. Notwithstanding they do not perform well enough their duties. Thus, for a more functional process, these two people’s representative bodies should be radically reformed and equipped with more effective monitoring and managing tools. As two independent bodies they could also be cross-checked by each other and once again with the oversight by the public, in accordance with the spirit of “People know - people discuss - people do - people examine” as highlighted in the propaganda of the government.

### Peripheral effects

In addition to the main (i.e. vertical and horizontal) effects, there are peripheral effects that interact in a closed circle and involve all four participants namely the government, professional organizations, the citizens and people’s representative bodies as described in Figure 1. These interactive relations also contribute to the smooth operation of Hanoi’s metropolitan housing market. The following conditions are prerequisite for such a highly-functional housing structure:

- + Ruling and managing competence of the government
- + Executive ability and transparency of the people's representative bodies
- + A thriving domestic economy with a comprehensive social welfare scheme
- + Research and development power of the professional organizations
- + A democratic society with a robust written constitution
- + Last but not least, full individual responsibility and full civil rights respected as well as protected by law.

## **New trends in present housing options and their effects on housing policies**

Sustainability and affordability can coexist. Sustainable-and-affordable housing in Hanoi is achievable both through policy and by design. Most of the present living quarters in Hanoi do not correspond to this new housing concept and should therefore be rebuilt. Many residents do not mind living in provisional (but decent) accommodation subsidized by the government for one or two years in order to settle down again permanently. Others would rather take this opportunity to find new housing somewhere else in the city as their first home. These people concentrate mainly in four central districts (Ba Dinh, Dong Da, Hai Ba Trung and Hoan Kiem), where the population density is as high as 35,000 inhabitants per km<sup>2</sup> [28] and the living quality index is below the city's average level. In 2000 there was a large depopulation and resettlement research project aimed at those city dwellers and sponsored by the EU but it has not yet been feasible. There are two possibilities for them to consider: either not so far from their present homes with regard to the schooling of their children as well as their route to work (Case A), for example, in new housing projects situated around West Lake - just four kilometers away in the north west, or anywhere in the city provided that the new place is better (or at least equally good) for living, schooling, working and other daily activities (Case B). Case A is related to the old (but still widely applied) registration policy which controls residence with rigid principles. The hesitation is also caused by the old way of thinking, especially among the elderly and the middle-aged, that moving out - even for a better place - may change some of their routines. Case B is, on the contrary, enabled and even encouraged in a new administrative system. This physical demographic movement, if well controlled, is in accordance with the theory of a rapidly-growing but self-regulating city towards a more stable and sustainable social structure. Location, accessibility and the question of education and local service quality will no longer be such big problems because of the convenient city-wide public transport network, the quality standardization (not only in building) and its nation-wide application. The most important factors will always be, of course, sustainability (or ecology) and affordability (or economy). The positive side of the negative influences (the global warming, the energy crisis, the soaring prices of gasoline and electricity, etc.) can be seen in the rising social awareness of ecological architecture as a must, beginning with energy-saving measures which was well illustrated by the impressive outcomes of the "Earth Hour" action program in March 2009, and also in the wider acceptance of the decentralized housing system as an alternative method of management, alongside the concepts "E-government" and "E-council" that are becoming more and more familiar with the public.



Again for political reasons, the government continues to play a leading role in housing by maintaining its centralized system as a major part of the metropolitan housing market and by upgrading its quality and structure so that it can be compatible with the prospective reform of the whole administrative system. The proportion of the centralized and decentralized housing should be flexibly adjusted within the permitted amplitude to fully meet the public demand. This kind of coexistence will certainly enhance the housing service quality through fair competition and allow people to have more options. They will be able to choose any type of accommodation as their first home in any housing project available and relevant to them on condition that they have met all the eligibility and payability criteria.

Securing a second home such as a weekend villa or a farming house is a parallel tendency in Hanoi among high-income people and part of the middle class. They seek acknowledged plots of land that suit them in the suburbs or in the countryside within a radius of 50 kilometers from the city center - just one hour drive away - where the real estate is easily purchasable. In the not-too-distant future those outlying areas will become new districts as a result of the city's continuous enlargement. A high-standard flat in a new satellite town - a little farther away - is another favorite choice. The number of such people keeps increasing in a modern society, as fast as the number of families owning a car. Together with the depopulation (from the city center to the outskirts), the new trend of finding a second home (in the same direction) is an indicator of a more open and self-sufficient housing mechanism in which the supply-and-demand law is the sheer inner driving force. The government's policy should then play the role of an outer control device only, as a pedal when this machine is too slow or as a brake if it is too swift.

## **Conclusion**

Sustainable housing is a wise choice for a new home-buying generation to make. However, without paying due attention to housing prices or building costs it will not be possible. Minimizing building costs means maximizing the opportunity for all people to settle down in their home towns. It is an important consideration for Vietnamese citizenry. This ambitious aim is obtainable through political, sociological, cultural, financial, scientific, technical and technological research and development. Only when technical and social sustainability in the urban development has been achieved can Vietnam improve its HDI (Human Development Index) and realize other MDGs (Millennium Development Goals) until 2015 as officially adopted by the United Nations and solemnly committed by the Vietnamese Government. Having only six years left with a mountain (exactly the backlog) of work to tackle, Vietnam must make an all-out attempt to accomplish its own MDGs. "A shortcut to sustainability" is a favorite phrase recently quoted in the mass media and frequently mentioned in planning, building and housing as a new way paved for the urban development in the coming years. "Shortcut" is a unique correct path for Vietnam which could be triggered with just one revolutionary decision made by a government of higher caliber. A stepping-stone is much better than a stumbling-block though they are both made of stone. "Stepping-stone or stumbling-block?" is always an open question for Vietnamese decision makers whenever they have to deal with the plain-but-not-simple issue: economy with or without ecology.

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