

Enhancing housing industry in Egypt through applying new design and construction techniques towards sustainability and actual market demand

Prof. Dr.Wael A.Abo Neama

Associate Professor In Architectural Department, Faculty Of Fine Arts, Helwan University,
Cairo, Egypt

E-mail Address: wael.aboneama@gmail.com

Mobile: (+20) 100 1426 210



ECG
ENGINEERING CONSULTANTS GROUP S.A.



Abstract:

Housing industry and production in Egypt are facing a catastrophic situation. Nobody can deny the housing problems in Egypt. More than 80% of Egyptians are living in Slums. Around 20% of all Egyptians are living in non healthy homes. Billions of US dollars are spent every year to build new high style compounds in Egypt for high class which confront a recession for selling these units.

The whole world is focusing now on sustainability and start renovation and replacement operations for its houses. On the other hand, Egypt we still looking to cover housing demand number. Housing problem in Egypt is not related to low investment rates in this sector, but to the wrong direction for housing investment. In other words, the production is oriented to only one sector which is only around 10% of all Egyptians and the supply is more than demand, however it costs more and more than all other types of housing.

In addition, to the wrong policies, all houses construction is focused on one type of construction which is reinforced concrete (post and lintel) casting on-site.

This research will present different types of sustainable construction for all housing types as one of the key solutions, and also to meet market demand and to be in the right way to solve this problem.



Introduction:

Housing industry in Egypt has been damaged starting from the beginning of last century. It was affected by several factors. Political decisions such as reduction of rental value several times and eliminating the time framed rental contracts were the major factors that destroyed housing industry in Egypt in a few years after those unfair laws due to first and second world war and after 1952. In addition, economic failure after the nationalization of private sector was the second knockout for housing in Egypt. Wars in Sinai and internal immigration increased the demand on private houses. Public sector was unable to meet all market requirements with the dramatic changes of social classes in this very specific period of Egyptian history. The result was a disaster and the born of slums in Egypt has been started which nobody knows when and how this problem could be solved. A second era for housing in Egypt with some positive features has been started after the 1973 war. Positive changes for enhancing economical situation and creating new cities to solve housing problems. The housing market now is saturated for certain level of housing and low income housing demand is increasing dramatically. The only way to start a real solution is to apply environmental designs with new construction techniques under precise vision for all housing levels.



Literature review:

1. History of housing in Egypt – Stage one Before 1952

No one can deny that Egypt before 1952 did not have a housing problem. Cairo got the best city in the world in the early fifth decade of twentieth century. Architecture and urban design of Cairo before 1952 could compete all European capitals.

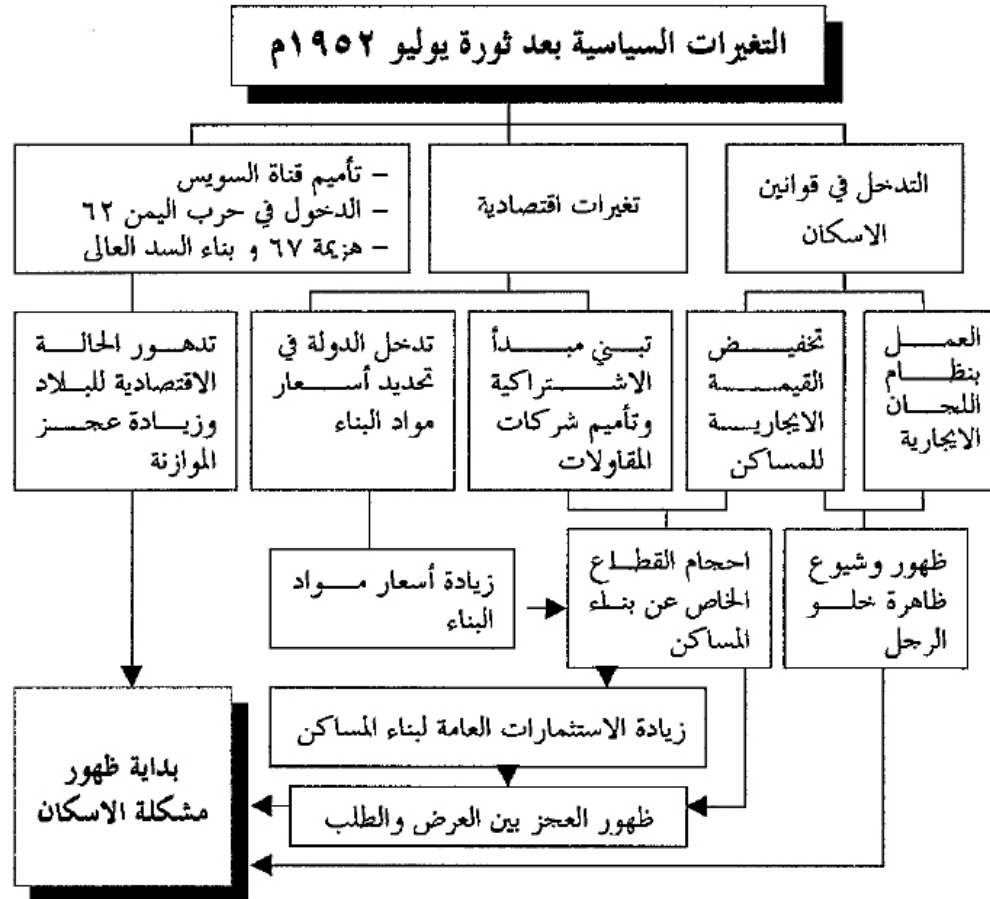
All illustrated figures present sustainable transportation and all types of housing in Egypt including the middle class society in that time. Unfortunately, we could not even protect all these treasures from damage.



Literature review:

2. History of housing in Egypt – Stage two After 1952

1952 was an important date in modern Egyptian history because it changed Egypt not only from kingdom to republican country, but also all economical and constitutional laws beside the wars



فترة ما بعد ثورة 1952 التي شهدت مجموعة من التخفيضات الإيجارية بالقوانين (قانون 199 /1952 – قانون 55 /1958 – قانون رقم 168 / 1961 – قانون رقم 46 / 1962 – قانون رقم 7 /1695) وكذلك تشكيل لجان خاصة يرأسها قضاة لتحديد القيمة الإيجارية.

وأشارت إلى أن أهم النتائج التي ترتبت على تخفيض الإيجارات وتحديد القيمة الإيجارية هي خروج القطاع الخاص من السوق العقاري للإيجار، وسيادة الاتجاه نحو التملك، وسوء توزيع الوحدات السكنية على الأسر المصرية، وارتفاع عدد الوحدات المغلقة، وانخفاض القيمة الإيجارية دون المعدلات المتعارف عليها، بالإضافة إلى تجميد الحراك السكاني (انتقال السكان من مسكن لآخر) وزيادة الكثافة المرورية، وعدم صيانة العقارات والمحافظة عليها، وتشوه النمو العمراني للمدينة المصرية، وعدم الاتزان بين أسعار الأراضي والقيمة العقارية للمباني المقامة عليها، وعدم الاستقرار التشريعي في مجال الإسكان.

وقالت: إن القوانين والتشريعات التي نظمت العلاقة بين المالك والمستأجر منذ 1920 وحتى قيام ثورة 1952 تسببت في الوضع الذي وصلنا إليه، حيث تم منع المالك من زيادة أجور أملاكهم إلا في حدود زهيدة عام 1941 بل إن هذا القانون ساهم في امتداد العقود الإيجارية بعد انتهاء مدتها بشكل تلقائي، وكان هذا هدفه منع طرد المستأجرين في ظروف الحرب العالمية، ولأول مرة بموجب قانون رقم 121 لسنة 1947 يتم تثبيت القيمة الإيجارية التي كان لها تأثير سلبي علينا طوال 70 عاما.

قوانين الثورة

واستطردت وكيل الوزارة: بعد ثورة 52 ظهرت مجموعة من القوانين التي كان مجملها من شأنها تخفيض القيمة الإيجارية للمساكن من 15% إلى 20% إلى 35%، وكانت نتيجة ذلك أن المالك أصبحوا يبالغون في تحديد القيمة الإيجارية عند تأجير الأماكن الجديدة تحسبا لاحتمال قيام الحكومة بإصدار قوانين جديدة مفاجئة لتخفيض الإيجار، وظلت الأمور متوافقة بين الطرفين حتى تم تشريع قانون 7 لسنة 1965 الذي أعاد مرة أخرى التقدير غير العادل للقيمة الإيجارية التي كانت لصالح المستأجر على حساب المالك.

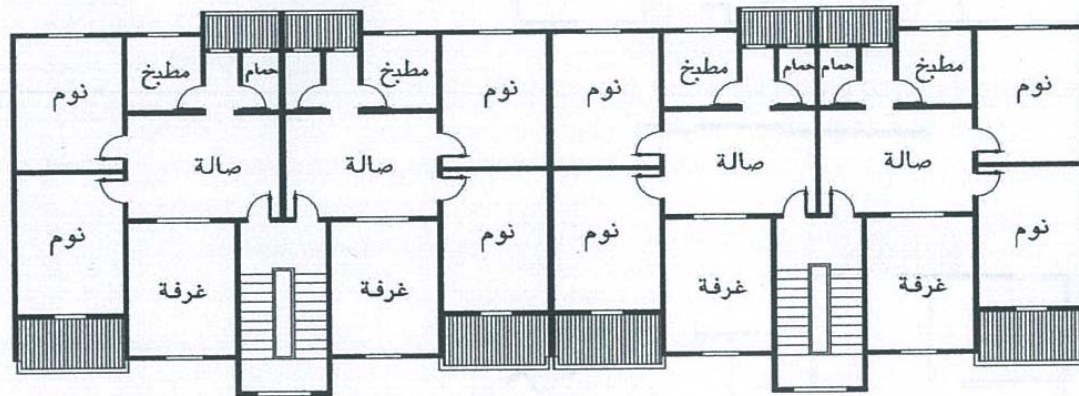
Literature review:

2. History of housing in Egypt – Stage two

After 1952



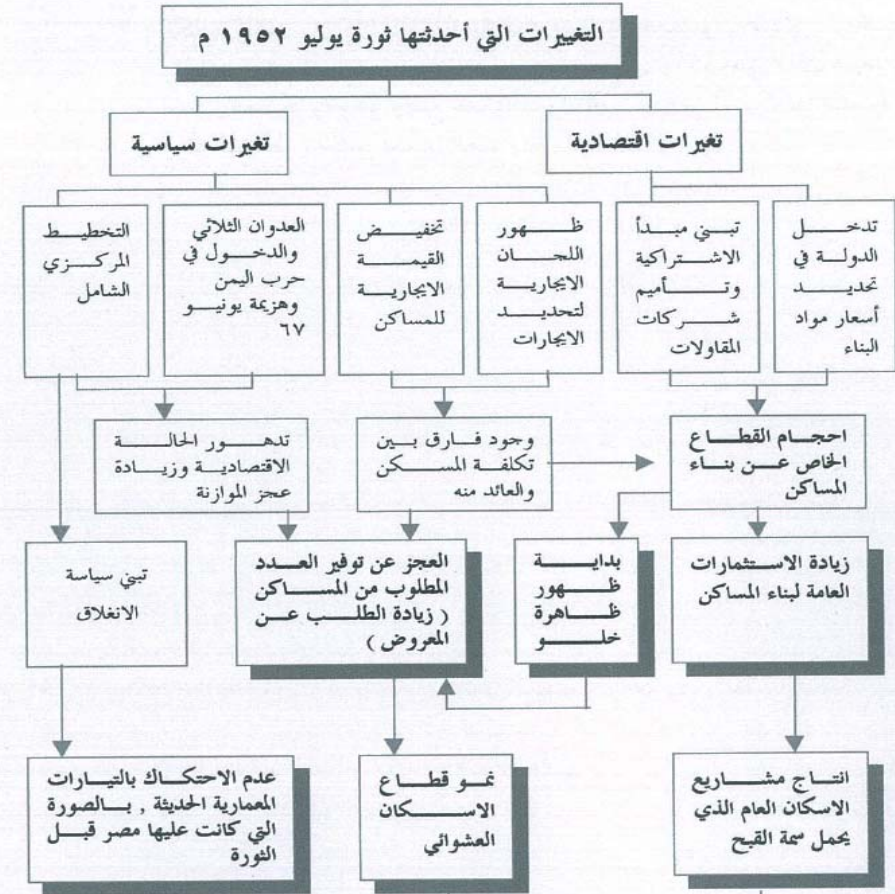
يوضح في الجزء الايمن (Layout) لتجمع منخفض التكاليف "اقتصادي" عام ويكون في الاغلب عبارة عن مجموعة بلوكات متوازية تفصل بينها مسافات ضيقة , وفي اليسار منظور لاحدى هذه الوحدات المتكررة .



نموذج نمطي للاسكان العام فى مصر, وقد يختلف التصميم اختلافا بسيطا فى المشاريع المختلفة (المصدر- وزارة الاسكان والتعمير)



تأثير التغيرات الاقتصادية والسياسية على الاسكان في فترة ما بعد الثورة



المصدر: عن الباحث

Literature review:

3. History of housing in Egypt – Stage three After 1973



Literature review:

4. History of housing in Egypt – Stage four After 1992



Literature review:

5. History of housing in Egypt – Stage five

Informal housing in Egypt

No one can deny that Egypt is under the pressure of lack of energy resources. Lack of car fuel, electricity current cutting all over the country, and refilling gas cylinders for home gas use are enough examples of the disaster we are facing nowadays.

By year 2022 other national resources become available:

The first scenario was based on:

- A. Supply of fossil-based energy production will remain at the same level.
- B. Wind energy grows, leading to about 20% contributions to electricity generation from renewable (hydro and wind).
- C. Nuclear energy would contribute about 6%.
- D. The energy supply mix around 2021/2022 becomes:
 - 40 % from (20% fossil fuel and 20% NG)
 - 8 % from energy efficiency implementations
 - 9 % from renewable (2% hydro and 7% wind)
 - 6 % from nuclear



Literature review:

6. History of housing in Egypt – Stage five

Living in tombs

No one can deny that Egypt is under the pressure of lack of energy resources. Lack of car fuel, electricity current cutting all over the country, and refilling gas cylinders for home gas use are enough examples of the disaster we are facing nowadays.

By year 2022 other national resources become available:

The first scenario was based on:

- A. Supply of fossil-based energy production will remain at the same level.
- B. Wind energy grows, leading to about 20% contributions to electricity generation from renewable (hydro and wind).
- C. Nuclear energy would contribute about 6%.
- D. The energy supply mix around 2021/2022 becomes:
 - 40 % from (20% fossil fuel and 20% NG)
 - 8 % from energy efficiency implementations
 - 9 % from renewable (2% hydro and 7% wind)
 - 6 % from nuclear



Literature review:

7. History of housing in Egypt – Stage five

Living in tinplate nests and in the streets without any shelter

No one can deny that Egypt is under the pressure of lack of energy resources. Lack of car fuel, electricity current cutting all over the country, and refilling gas cylinders for home gas use are enough examples of the disaster we are facing nowadays.

By year 2022 other national resources become available:

The first scenario was based on:

- A. Supply of fossil-based energy production will remain at the same level.
- B. Wind energy grows, leading to about 20% contributions to electricity generation from renewable (hydro and wind).
- C. Nuclear energy would contribute about 6%.
- D. The energy supply mix around 2021/2022 becomes:
 - 40 % from (20% fossil fuel and 20% NG)
 - 8 % from energy efficiency implementations
 - 9 % from renewable (2% hydro and 7% wind)
 - 6 % from nuclear



Literature review:

7. History of housing in Egypt – Stage five

Housing compounds against Egyptian ecology

No one can deny that Egypt is under the pressure of lack of energy resources. Lack of car fuel, electricity current cutting all over the country, and refilling gas cylinders for home gas use are enough examples of the disaster we are facing nowadays.

By year 2022 other national resources become available:

The first scenario was based on:

- A. Supply of fossil-based energy production will remain at the same level.
- B. Wind energy grows, leading to about 20% contributions to electricity generation from renewable (hydro and wind).
- C. Nuclear energy would contribute about 6%.
- D. The energy supply mix around 2021/2022 becomes:
 - 40 % from (20% fossil fuel and 20% NG)
 - 8 % from energy efficiency implementations
 - 9 % from renewable (2% hydro and 7% wind)
 - 6 % from nuclear

Literature review:

4. Egypt problems as historical country

Egypt cities suffer from many problems not limited to the following:

- Cairo is an expanding city, which has led to many environmental problems. The air pollution in Cairo is a matter of serious concern. Dangerous levels of lead, carbon dioxide, sulphur dioxide, and suspended particulate matter concentrations due to decades of unregulated vehicle emissions, urban industrial operations, and chaff and trash burning. There are over 4,500,000 cars on the streets of Cairo.
- Rapid urban expansion resulted in encroachments on agricultural land. Total prime agricultural land lost to urbanization during the period 1952-2002 amounts to 300,000 acres
- An addition of almost 1.35 million overpopulated annually.
- Egypt faces a shortage of affordable housing supply for the poor despite the presence of 5 million vacant units.
- About 440,000-600,000 new housing units are needed annually between now and 2020, of which 300,000 for low income households.
- Optical pollution.
- The underground is the only tool for sustainable transportation.
- Economical problems that create an obstacle to achieve sustainable growth and environmental goals.

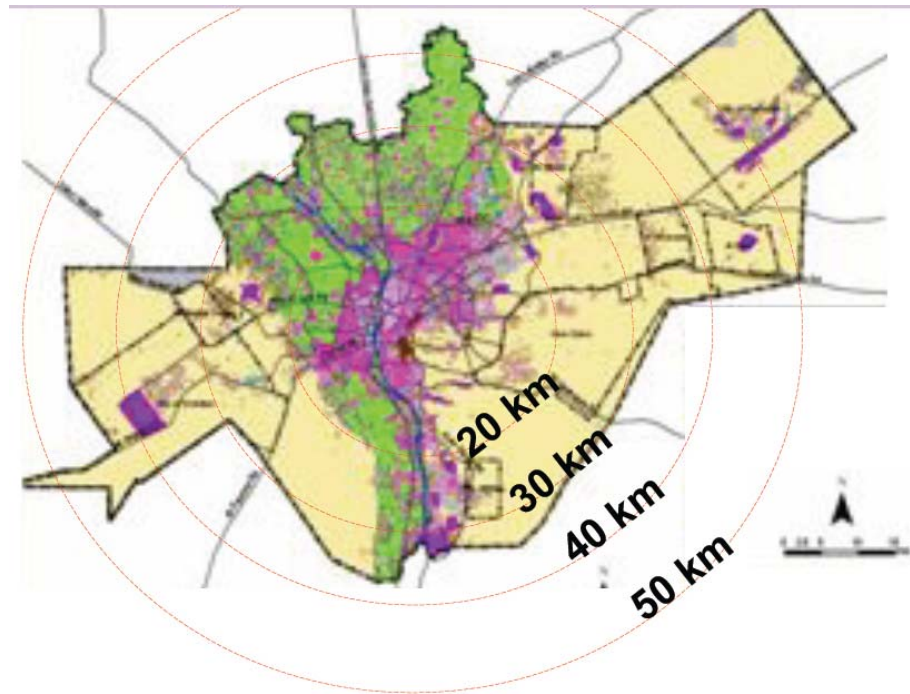


Literature review:

4. Egypt problems as historical country

Egypt cities suffer from many problems not limited to the following:

- High residential density in main existing agglomeration
- Rising traffic congestion.
- Limit/mediocre use of culture and natural resources.
- Mediocre living condition in some areas.
- Limited green spaces (0.3 m² /person within the ring road and 1.5 m²/person in the region as total).
- The challenge is not the size, but the population distribution over the whole region area



Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

1. Cairo Vision 2050

Main Goal:

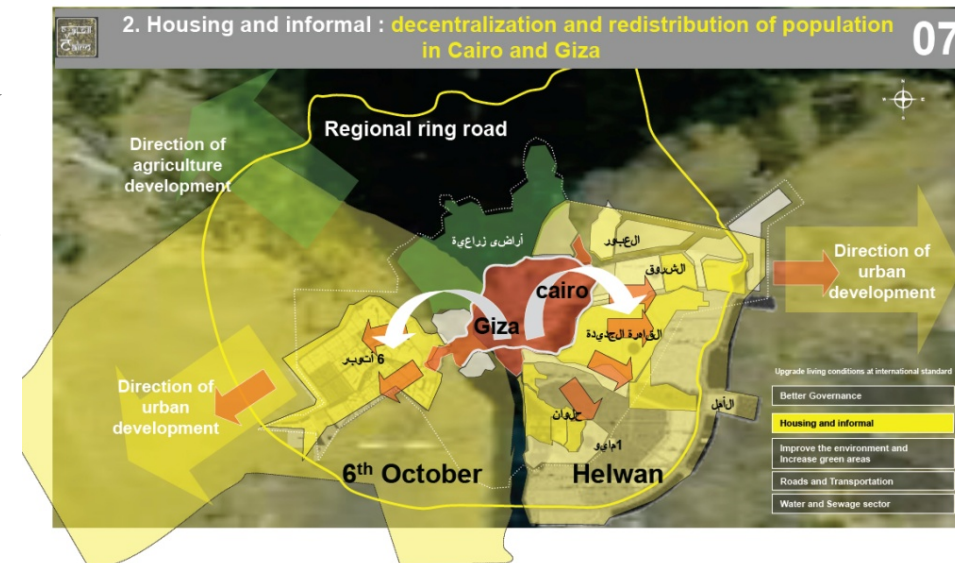
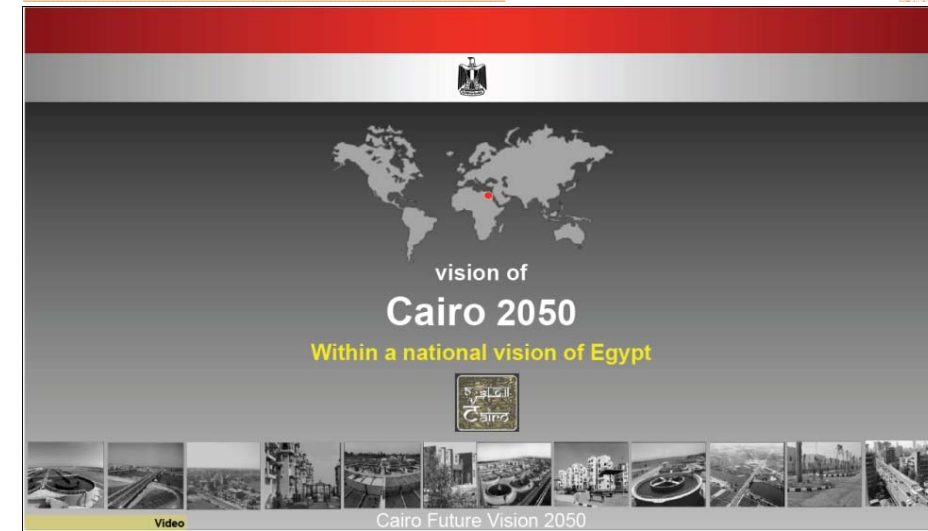
Sustainable development vision for Cairo 2050 and beyond, Includes social, cultural and economic fields integrated with urban field. With good Governance, we can achieve the best results for current and future generations. This aim includes the following items:

- Good living condition for its citizens (to be among the 30 best cities in the world).
- One of pioneer cities on the context of environmental level.
- Restoration of urban and architecture heritage of the city and elimination of slums.
- Reach the international standard for green areas/per capita.
- Containing routes for pedestrians, open and green areas and public squares.

In page 33 it was mentioned the following:

Open new directions for urban growth and new big cities

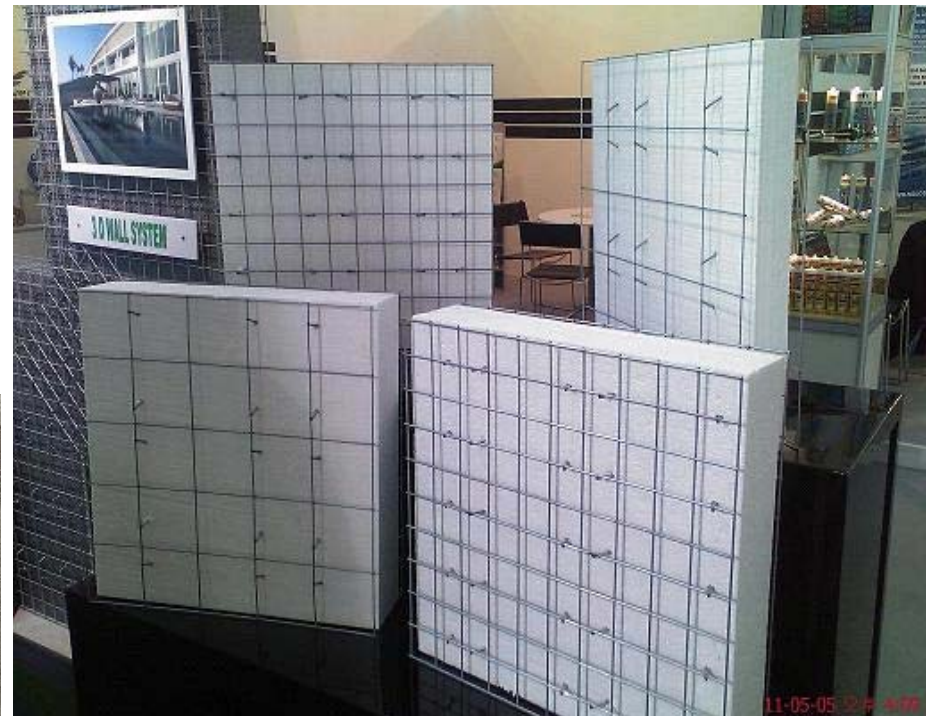
- Access to roads network linking Cairo suburbs to regional roads.
- Good transportation network at an international level.
- Has pedestrian and cycling network linked with the transportation network.



Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. Polystyrene construction: Eco-friendly light weight structure

Various environmental challenges posed by the application of non-sustainable construction materials and techniques and higher cost of same in the recent time have made the search for better and cheaper alternatives a crucial task in the provision of housing in Egypt. As a product of research and technological advancements, modern eco-friendly building materials are currently emerging to satisfy the requirements of sustainable developments and mitigate environmental challenges. One of such materials is the expanded polystyrene or EPS. While it was discovered that there is little or no availability of the material in most Egyptian building markets due to lack of awareness among the various stakeholders and practitioners in the building industry, it x-rayed the need for a paradigm shift from the conventional system of building characterized by waste, cradle to grave (demolition) and global warming to a waste-free, recyclable, eco-friendly and cheaper alternative way of building construction



Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. Precast housing construction:

Is precast concrete a green building material?

Precast concrete contributes to green building practices in significant ways. The low water-cement ratios possible with precast concrete -0.36 to 0.38- mean it can be extremely durable. The thermal mass of concrete allows shifting of heating and cooling loads in a structure to help reduce mechanical-system requirements. Because precast concrete is factory-made, there is little waste created in the plant (most plants employ exact-batching technologies) and it reduces construction waste and debris on site, reducing construction IAQ concerns. The load-carrying capacities, optimized cross sections, and long spans possible with precast concrete members help eliminate redundant members, and concrete readily accommodates recycled content.

Is precast concrete energy-efficient?

The thermal mass of precast concrete absorbs and releases heat slowly, shifting air conditioning and heating loads to allow smaller, more efficient heating, ventilating, and air conditioning (HVAC) systems. Insulation is often used in architectural panels and sandwich wall panels to increase thermal efficiency, with continuous insulation (ci) in walls being possible. The resulting savings are significant up to 25% on heating and cooling costs.

INSPECTION - (1) PRECAST PARTY WALL INSTALLATION

STEP - 1
Lift the Precast Party Wall to the position by Crane.

STEP - 2
Support the Precast Party Wall with Prop and tie with C-Channel.

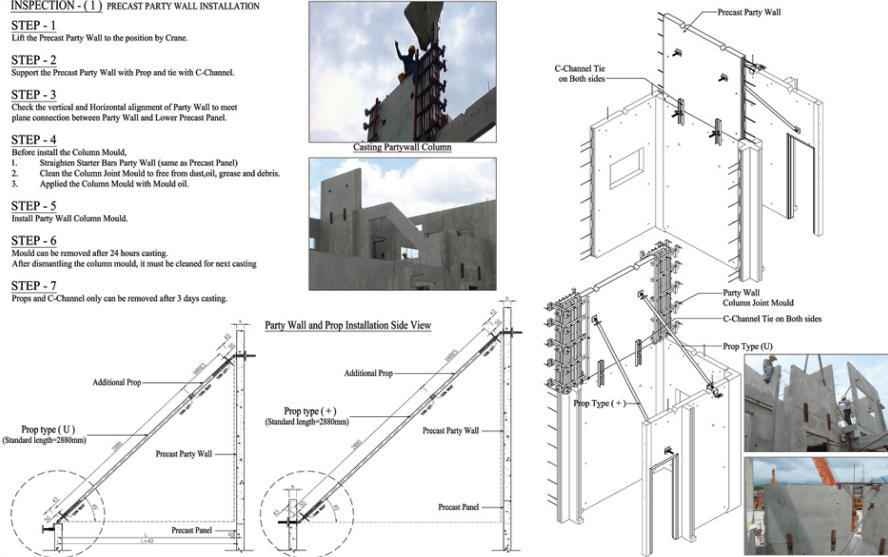
STEP - 3
Check the vertical and Horizontal alignment of Party Wall to meet plane connection between Party Wall and Lower Precast Panel.

STEP - 4
Before install the Column Mould.
1. Straighten Starter Bars Party Wall (same as Precast Panel)
2. Clean the Column Joint Mould to free from dust, oil, grease and debris.
3. Applied the Column Mould with Mould oil.

STEP - 5
Install Party Wall Column Mould.

STEP - 6
Mould can be removed after 24 hours casting.
After dismantling the column mould, it must be cleaned for next casting.

STEP - 7
Props and C-Channel only can be removed after 3 days casting.



Prop type (U)
(Standard length=2800mm)

Prop type (+)
(Standard length=2800mm)

Prop type (U)

Prop type (+)

NO.	REV.	DATE	BY	CHK.	APP.
01	01	01/01/2018	...	...	...
02	01	01/01/2018	...	...	...
03	01	01/01/2018	...	...	...
04	01	01/01/2018	...	...	...
05	01	01/01/2018	...	...	...
06	01	01/01/2018	...	...	...
07	01	01/01/2018	...	...	...
08	01	01/01/2018	...	...	...
09	01	01/01/2018	...	...	...
10	01	01/01/2018	...	...	...

IC PRECAST SYSTEM SDN. BHD. (086897-10)
No.23, Jalan Sri Selatam 200/702, Taman Sri Andalan,
41200 Klang, Selangor D.E. 7453-3221 5099 Fax:03-3221 8993
e-mail:info@icprecast.com.my icprecast@icprecast.com.my

IC MACHINERY & ENGINEERING SDN. BHD. (086504-10)
No.23, Jalan Sri Selatam 200/702, Taman Sri Andalan,
41200 Klang, Selangor D.E. 7453-3224 5259 Fax:03-3224 8992

IC MANUFACTURING SDN. BHD. (086707-17)
No.23-1, Jalan Sri Selatam 200/702, Taman Sri Andalan,
41200 Klang, Selangor D.E. 7453-3223 7999 Fax:03-3223 8993

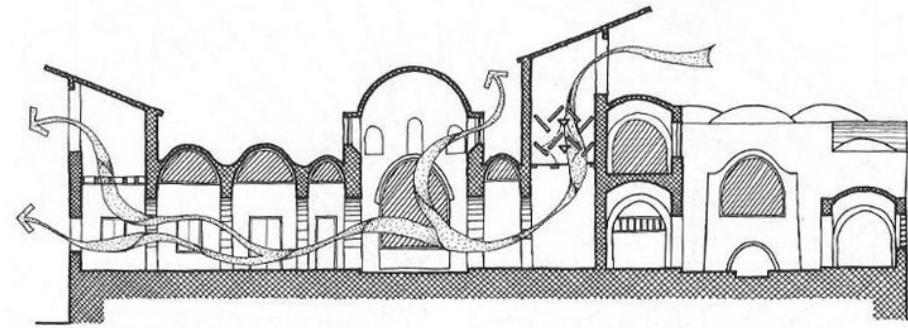


Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. Use environmental designs (Hassan Fathy prototype):

Fathy's most important contribution to the debates over the development of twentieth-century architecture probably lies in his continuous opposition to the International Style and the phenomenon of universality in architecture. He distrusted the inability of twentieth-century architects to answer the specific environmental issues of particular regions and believed that the answer must lie in the recreation of forms true to the region as well as to methods of construction. He valued architecture that is rooted in the location and the culture of a region, as opposed to an imported internationalism, rooted in a common technology rather than a common humanism. The way in which Fathy pronounced the inadequacy of the ideology of modernism in fulfilling human needs attracted the attention of the architectural profession worldwide.

Beyond the evident typology in Fathy's buildings and the guiding architectural principles which were pioneered through his work, his architecture was shaped by a conceptual framework which developed an understanding of contemporary responses to modern environmental, urban and societal conditions of existence. Fathy's approach was a transformation of a prevalent modern architecture language to a social metaphor evoking honesty, efficiency and availability.



Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. مشروع ابني بيتك to protect Green fields:

The informal sector proved that it has the ability to build, however it has negative impact on the national economy because they build on agriculture land without any regulations or sense of architecture and urban design.

The idea of “Ebny Betak” project was focused on giving the informal sector the land for free with free architectural designs and urban design with restricted regulation to build. The people had build the given designs exactly. Again the problem is from all authorities.



غياب الخدمات وانعدام الأمن وانتشار البلطجة حوله إلى مدينة للأشباح
الأهالي: أنفقنا كل ما لدينا لامتلاك بيت بالمشروع والنتيجة صحراء
جهاز مدينة أكتوبر: توصيل الخدمات خلال شهرين

Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. to protect Green fields: مشروع ابني بيتك

الحوافز التي تجتذب الاستثمارات الخاصة للمستويات المختلفة ومنها الاقتصادية من الاسكان مثل :

- تخفيض الضرائب تدريجيا لدرجة قد تصل الى المشاركة أو صرف قيمة معينة للمستثمر على كل وحدة اسكان اقتصادي يقوم بتنفيذها (وهذا لا يعني ضياع الاستثمارات الحكومية لحساب القطاع الخاص اذا أخذنا في عين الاعتبار ما تتحمله الحكومة لحل مشاكل العشوائيات سواء العمرانية أو الصحية أو الاجتماعية) .
- تشريع القيود على الاسكان الفاخر , كالزام المستثمر بتحمل تمويله من حسابة دون الاعتماد على قروض البنوك , مما سيجعل تصميم مشاريع الاسكان الفاخر تلتزم بأقل تكاليف التنفيذ , وعمل دراسات الجدوى الدقيقة .
- عمل وحدة بالبنك المركزي تحدد كمية القروض الموجهه للاسكان , وتصنيفها حسب مستويات الاسكان , وتوجيه المستثمرين كل حسب قوته الاقتصادية في كل مستويات الاسكان .

٦- يجب الاستفادة من قوة وقدرة القطاع الغير رسمي في توفير المساكن محدودى الدخل , وبدلا من التذبذب في النظر لهذا القطاع من الاسكان مرة بتجريمه وأخرى بالاعتراف به ومد المرافق الية أن يتم تنظيم هذا النوع من الاسكان والاشراف عليه قبل البداية , فكان من الاولى أن تقوم الدولة بتقسيم أراضي صحراوية على نظام تخطيطي وبيعها ولو بأسعار رمزية بدلا من شركات تقسيم الاراضي الزراعية التي تفقد الدولة من ٥٠-٧٠ ألف فدان سنويا من أجود أراضيها , وأن تعطي الدولة تصميمات مناسبة لمساكن هذه الفئة بالبحر , ومن الممكن أن تساعدهم بقروض طويلة الاجل بفائدة بنكية لاتتعدى ٢ % , فاذا تم حساب تكلفة ذلك على الدولة سيكون أقل بكثير من خسارة فقدان الاراضي الزراعية وحل مشاكل هذه العشوائيات .

٧- الاهتمام باعادة تنظيم تشريعات قوانين البناء وسد الثغرات القانونية التي يستغلها المحامون للافلات من عقوبات التجاوز .

٨- التشديد والحزم في تطبيق القانون وعدم التساهل لوقف التدهور العمراني بالاحياء والمدن المصرية , والحفاظ على التراث المعماري الباقي من التاريخ .

٩- توعية الفرد باحترام القانون واتباعه , والابتعاد عن كل ما هو مخالف للقانون للمحافظة على البيئة التي يعيش فيها .

* كما هو معمول به في بعض الدول الاوروبية .

بسم الله الرحمن الرحيم



كلية الفنون الجميلة
قسم العمارة

بحث بعنوان :

تأثير التغيرات الاقتصادية على الاسكان في مصر في الفترة ما بين
١٩٧٣ - ١٩٩٨ م

**The Impact of Economical changes on the
Housing in Egypt during the period 1973 - 1998**

لنيل درجة الماجستير في العمارة

إعداد:

م / وائل أحمد شعبان أبونعمة .

المعيد بقسم العمارة - كلية الفنون الجميلة - جامعة حلوان

إشراف :

أ . د / محمد طلعت الدالي

استاذ ورئيس قسم العمارة بكلية الفنون الجميلة - جامعة حلوان

أ . د / على حافظ منصور

استاذ الاقتصاد بكلية الاقتصاد والعلوم السياسية - جامعة القاهرة

٢٠٠٢ م

Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. مشروع ابني بيتك to protect Green fields:



Dr. Wael Abo Neama

وزير الإسكان بعد تفقد مشروع "إبني بيتك": إنا كده بنضحك علي الناس"



كتب - إسلام الجوهري:

قال الدكتور مصطفى مدبولي، وزير الإسكان والمرافق والمجمعات العمرانية، إن عدد كبير من وحدات المشروع القومي السابق للإسكان، المنتهية من البناء، والتي تم تخصيصها بالكامل، لم يتم تسكينها حتى الآن، نتيجة عدم وجود خدمات، أو عدم تنسيق للموقع.

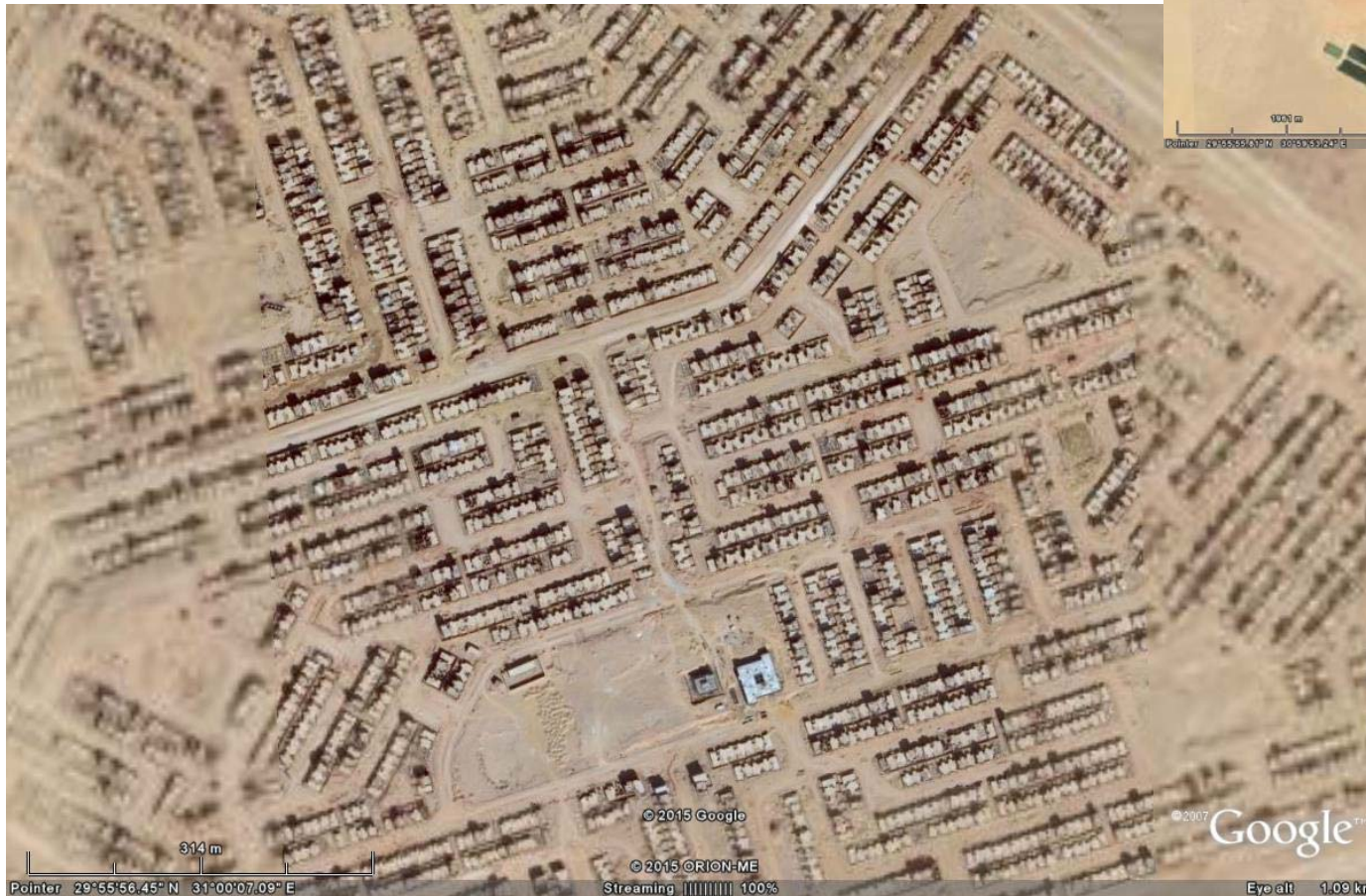
وصرح وزير الإسكان خلال تفقده للمنطقة السادسة والسابعة بمشروع "إبني بيتك" أنهم كيف يطالبون المستفيدين من المشروع بالسكن فيه وهو في هذه الحالة، وقال موجهاً كلامه بشكل حاد إلي رئيس جهاز مدينة 6 أكتوبر " إنا كده بنضحك علي الناس، أنا راضي ذمتك هل ترضى بالسكن في موقع كهذا؟"، وتابع " كيف للمواطن أن يسكن، ولا يوجد تسوية للموقع، أو تنسيق للموقع، أو خدمات، هذا غير مسموح به على الإطلاق".

ورد رئيس الجهاز بأنه تم طرح تنسيق الموقع للوحدات، وبدأ فتح المظاريف، وعلى الفور كلف وزير الإسكان مسئولي هيئة المجتمعات العمرانية الجديدة، بخطة وبرنامج زمني خلال 4 أشهر لانتهاء من أعمال تسوية وتنسيق المواقع والخدمات في جميع مواقع الإسكان الاجتماعي بالمدن الجديدة.

وزار وزير الإسكان رافع الصرف الصحي بمشروع "إبني بيتك" وأكد للمستفيدين من الشباب أن رئيس الوزراء أوصاه بشباب إبني بيتك، وضرورة استكمال مرافق وخدمات المشروع، كما أعلن أن رئيس الوزراء كلف وزير الترميم بإنشاء منافذ لبيع الخبز وغيرها من المواد التموينية في المناطق المحرومة، وتم الاتفاق على البدء بمشروع إبني بيتك، ومساكن الأولى بالرعاية.

Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. مشروع ابني بيتك to protect Green fields:



Methodology steps to enhance housing industry in Egypt towards sustainability & actual market

3. Adobe architecture for rural agriculture villages:

Description:

Adobe bricks are most often made into units weighing less than 100 pounds and small enough that they can quickly air dry individually without cracking and subsequently assembled, with the application of adobe mud, to bond the individual bricks into a structure. Modern methods of construction allow the pouring of whole adobe walls that are reinforced with steel.

Strength:

In dry climates, adobe structures are extremely durable, and account for some of the oldest existing buildings in the world. Adobe buildings offer significant advantages due to their greater thermal mass but they are known to be particularly susceptible to earthquake damage if they are not somehow reinforced. Cases where adobe structures were widely damaged during earthquakes include the 1976 Guatemala earthquake, the 2003 Bam earthquake and the 2010 Chile earthquake. Depending on the form into which the mixture is pressed, adobe can encompass nearly any shape or size, provided drying is even and the mixture includes reinforcement for larger bricks. Reinforcement can include manure, straw, cement, rebar or wooden posts. Experience has shown straw, cement, or manure added to a standard adobe mixture can all produce a stronger, more crack-resistant brick



Results and findings

We can conclude from this study that we are facing five challenges that we should be careful and work on them:

1- Absence of long term planning:

We can not reach to the existing situation without Absence of long term planning. We do not have vision for the next twenty and fifty years based on real analysis and numbers of all facts. The planning based on action and reaction factors always leads to failure.

2- Lack of coordination between authorities:

It is very clear that some authorities in Egypt are working as separate islands. The example (which we all have seen) of after finishing the road asphalt some infra structure authorities after few weeks come to dig for its pipelines are basic principal.

3- Lack of experience amongst decision makers:

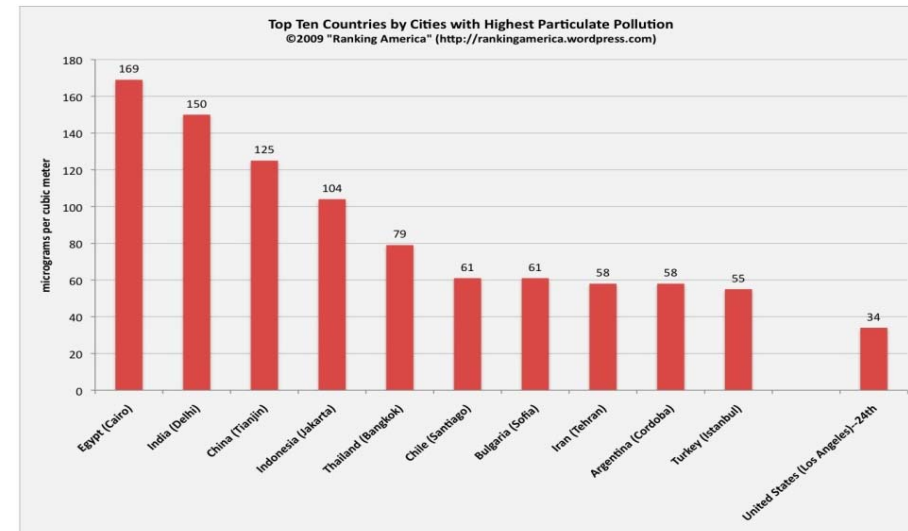
Without applying the philosophy of reward and punishment, decisions will be taken without any consulting.

4- Electricity market structure:

The electricity production and structure plan should be restudied and planned which we hope that has been done with Siemens.

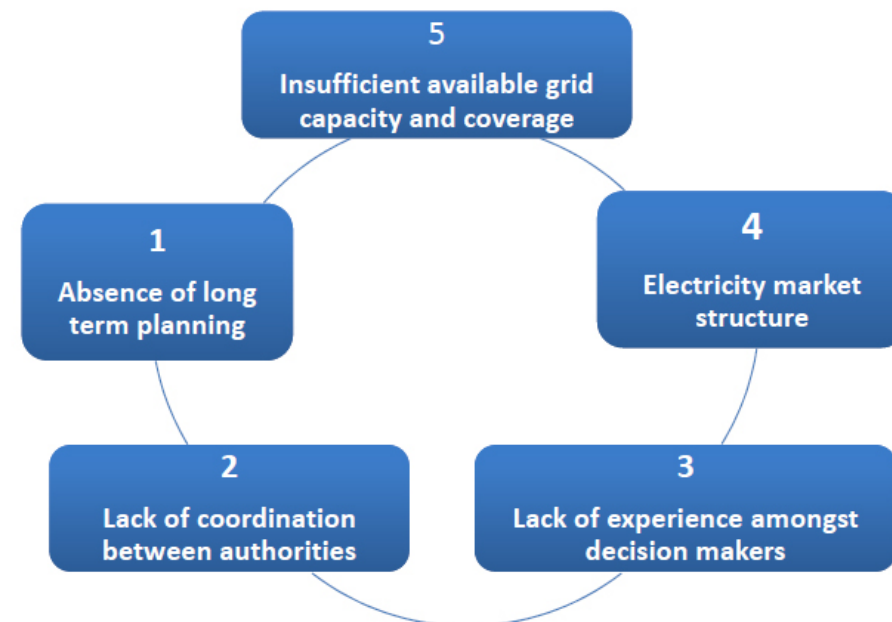
5- Insufficient available grid capacity and coverage:

The electricity production and structure plan should be restudied and planned which we hope that has been done with Siemens.



Data from World Bank
<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20394745~menuPK:1192714~pagePK:64133150~piPK:64133175~theSitePK:239419~isCURL:Y,00.html>

Key Challenges for Promoting RE



Results and findings

More than 80% out of a population that has exceeded 90 million currently live in Egypt's slums, most of which are based in the Greater Cairo metropolitan area.

Inhabitants are forced to live in inhumane settlements, owing to a severe shortage of affordable housing in the cities, suffer from lack of electricity and sewage services, and are subjected to mistreatment by the state, including regular forced evictions.

Thousands of poor Egyptians who survive in slum areas are left on their own to deal with extreme heat in the summer or treacherous rain stints in the winter, such as a recent storm that drenched shanty towns across the country.

The ever-growing number of slum dwellers highlights the huge disparity in the distribution of wealth, residential units, and unequal access to housing options.

"Governmental policies since the 1970s have always been biased to big capital and profit accumulation rather than the society's lower tranches. Governments literally ignored informal housing; it was never their priority," Khaled Ali, a prominent labor lawyer and former presidential candidate.



Results and findings

The illustrated figure clarify the actual situation of urban growth in Egypt. It is very clear that all urban growth in Egypt is focused on only one item which is agriculture around Nile river which was the main criteria of historical urban growth all over Egypt as it has a logic because the agriculture was the main pillar of Egyptian economy.

But, nowadays and after the overpopulation expanding and the vision of creating an industrial country and opening a new approaches for urban growth, the potential of generating renewable energy should be the main principal for the new urban growth.

To achieve a real sustainable growth, we have to be careful of the main pillars of sustainability which are environment, people and economy. In other words we have to study the whole country as potential locations of having renewable resources of energy and water. They will be the base of strong economy based on agriculture and industry to create the new cities.

From all previous studies we can conclude that north coast, Al-Wahat, Toshka, Red sea coast and all Sinai are empty areas with an excellent value for renewable energy and water.



Discussion and analysis

- The Sustainable urban development is created in a long term planning. So, we should back again to planning stages for long terms and to be divided into short stages (five years for example) to can face our serious challenges.
- Sustainable development is the only way to create our grandsons future.
- Electricity production is increasing all over the world and Egypt should start and according to its resources it could be on of clean energy exporters.



Conclusion and recommendations

- Long term planning such as Cairo vision 2050 should be studied by governmental authorities with corporation of academic and research staff of the country.
- Opening of sustainable urban growth based on potentials of renewable energy production will create new era for Egypt economy and social living.
- Sinai, North Coast, Al-Wahat, Toshka, and Red Sea coast are the main directions of new urban development.
- Transportation is best way for developing new urban areas as a result of historical new areas such as Heliopolis and Nasr city.
- Using all means of sustainable transportation which are; tram, trolleybus, monorail, underground metro, zero emission buses, environmental friendly cars, river taxi, bikes, and side walks.
- Demolishing tram lines was a big mistake for Cairo.
- Publishing the data and results of long term planning will help researchers to provide ideas for better enhancement of this entire vision.
- Apply the sustainable rating system and pushing all designers and developers to build upon its recommendations will push Egyptian projects towards better environment.
- Eliminate any taxes or customs on environmental-friendly vehicles and cars and provide refill stations for those new tools.



References

- <http://footage.framepool.com/shoting/qf/614038604-trolley-bus-melbourne-road-surface-marking-tram.jpg>
- http://www.euanmearns.com/wp-content/uploads/2014/03/Egypty_energy_balance.png
- <http://www.geni.org/globalenergy/library/energy-issues/egypt/graphics/EGELEC.jpg>
- <http://grade7isyscience.wikispaces.com/file/view/windpowergrowth-2008-economist1.jpg/339166014/529x627/windpowergrowth-2008-economist1.jpg>
- <https://evolucaoalp.files.wordpress.com/2012/04/capacidade-energia-eolica2.jpg>
- <http://planetsave.com/wp-content/uploads/2015/03/renewable-energy-in-africa-and-middle-east-wikimedia-commons.jpg>
- <http://www.abc.net.au/news/image/6320182-3x2-940x627.jpg>
- <https://victortravelblogdotcom.files.wordpress.com/2014/09/1.jpg?w=780>
- <http://www.nrea.gov.eg/all%20img/eee.JPG>
- <http://i.ytimg.com/vi/sLrbNHswAvA/maxresdefault.jpg>
- https://energypedia.info/wiki/Egypt_Energy_Situation
- <http://www.motherearthnews.com/~media/Images/MEN/Editorial/Articles/Online%20Articles/2013/01-01/First%20US%20Wave%20Energy%20Set%20for%20Oregon%20Coast/Ore%20wave%20energy%20graphic.jpg>
- http://bfi-internal.org/dsnews/v8_no11/wave.jpg

Thank you,

Dr. Wael Aboneama

Associate Professor In Architectural Department, Faculty Of Fine Arts, Helwan
University, Cairo, Egypt

(+20) 100 142 6210 - wael.aboneama@gmail.com

