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Fundamentals of Rural Housing in Egypt

By

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Fundamentals of Rural Housing

INTRODUCTION

The housing problem in Egypt is still being treated on the basis of the present circumstances that determine the rural house either in its place or in a trial at finding the necessary materials for building the walls and roofs or in the development of the W.C. the oven. In other words the betterment of the environment of the rural house. The problem of the rural house is connected with social and economic factors that are in the country. There is a strong relationship between the habitation block for the village and the agricultural land from which it has sprung. From the roots of this reality starts the treat,ent of rural housing.

If rural housing depends on the direction of the village planning it nonetheless depends on the results of the quantitative researches for the elements of construction and architectural preparations that determine its production. The extent of its productivity and usage and in a way that ensures for the rural house in its new form its compatibility within the frame of the new village planning. On this basis the paper follows two lines. The first line deals with the social economic and natural fundamentals of the housing rural problem in the general frame of rural planning. The second deals with the fundamentals of planning of the rural house, and its architectural elements so as to congene with the different social formations that spring from the economic fundamentals of the rural sociaty in its new planning.

The rural housing has gone through various experimentory developments on a small scale. This has been in either the village of the reclaimed areas or in the villages that have been either burnt or swept away by water or those that have been flooded by the Nile or that crumble victims to the white ant.

If this experiment has been born of fate and local conditions; it has nevertheless the living elements that deal with the problem in its different facets. If rural housing is still within its local boundaries, the time has come for it to be tackled within the general national framework and consequently within the regional planning of the country. The two sides of the problem to be tackled are the industry of building and the fate of the village. In this we cannot really depend on the present reality of rural life in Egypt. This study has therefore been built with the beyond the reality, outlook with all the conditions and elements that influence the rural housing.

The principle of security has been one of the most important influences in the village house and consequently on the natural form of the village. The procuration of security and good lighting of the villages in the

future will change the society, the house and the nature of the village. Rural planning and housing must make out faith in the new society greater.

Ignorance that has overwhelmed the Egyptian countryside for many generations cannot stand in the way of the illumination of the peasant so as to ensure for him a better life. The stagnation of the peasant is a fellacy that we have inherited from past ages. The understanding of the peasant of the different conditions that have given the village its present shape as well as the possibilities of future developments is a matter of vital importance to the future of the village. The villagers of "Awasga" ("Sharkia") have shown their capacity of understanding the new planning of the village. They have also shown their favourable reaction to the new developments that could change their environment.

The peasant has shown his readiness to change his surroundings, if a convenient substitute could be found. In this study I am completing my previous studies in regional rural planning that will determine the future of natural rural planning.

These studies are based on the statistics and informations that were published by the Permanent Congress for Public Services of the Giza Governate and the previous researches of the Department of the Fellah in the Ministry of Social Affairs. They are likewise based on the pamphlets and publications of the International Centre for Basic Education in Sers el Leyan, my former papers in the fields of rural planning and lastly on my connections and personal experience in the village of El Arwasya (Sharkia) to the villagers of this village goes the credit of the success I have achieved in my meetings with them.

THE FATE OF THE VILLAGE:

At the time that the future of the economic and social planning in the State have become clear explicit the fundamentals of the socialist society are beginning to appear clearly in various sectors, we find the future of the village yet undetermined.

The village encloses the majority of the inhabitants that have not had a convenient share of life because the Egyptian village has remained for years a homogeneous block of the earth on which it has been built. Rural building is divided into two main directions. The first aims at the improvement of the rural environment and the second at the replanning of the village on new basis.

The improvement of the village planning will not depend basically on the economics of social formation of the village. It will be limeted to the treatment of the

local problems in the natural formation of the village. Also it will deal with the wildth of streets, its improvement or its expansion to the centre of the village to close in with what roads it meets. Hence, an interior road net for the village could be formed as a basis for directing the building constructions in future. It could also serve to procure for the inhabitants the necessary technical help in the plans for houses or other rural constructions. The improvement of the rural environment is directed towards the treatment of the special aspects of the village such as the solution of the basic problems in storage of dry plant stalk on the roofs of the village houses. The treatment consisted in either pressing the stalk or selling it to the co-operative storages that it could use in its turn in the co-operative bakeriers in the village. Here may appear the human element in customs followed and that could be equated with the economic improvement of the peasant by giving him a bigger amount of bread that is produced by the bakery perhaps from the grains he himself had offered. Problems could be treated in this fashion.

The improvement of the environment, on the other hand, deals with the sanitary side of the village. The cleanliness of the streets, the filling up of swamps, the search for ways of disposing sanitarily of human and animal detretus are some of the aspects of this side of the village. Also, within the range of sanitary improvement would be the solution of such problems as the inside the home stables, the use of the oven, the state of the rural W.C. the fight against flies and mosquitoes, the cleanliness of the houses, both enterior and exterior, and finally the muddy streets and the use of mud in building. However, the materials used in building will not help the improvement of the environment to continue long. The improvement of the environment will not influence greatly the existing circumstances of the village. The economic and social circumstance will not be much altered either.

The second direction draws the general plan of village building within a certain period of time. At the same time it determines the various executive stages of this plan. The pulling down of sections and rebuilding them would be one alternative. The other to build out of the village new building to which the village would gradually move. This conception depends on the social formation of the village as a basis for natural planning. It nevertheless, does not touch the economic basis of the village and hence its social fundamentals. This in the extent of the population pressure on the use of the land and balancing the number of workers on it with its production value, so as to ensure for the village a reasonable standard of living. Also, the way the land is cultivated, in its present agricultural division and future divisions under various technical and economic agricultural directives. The conception of village planning once more changes towards building on a clear economic basis.

The state has followed the conception of cycle crops. Large plots of land amounting to 200,50 feddans are to be planted in one crop according to the irrigation system of the year. The state also makes for the cultivation of small land ownerships so as to put an end to the damages of such decentralisation and increase production to 30% as the agricultural specialists forecast. The state is opening up new fields to absorb the unemployed. It is encouraging immigration to the new cultivations in the "Wadi El Jedid" or the old Valley. It is also industrialising heavily. The unemployment amounts to 20% or 30% of the rural population. The various studies I have made point out to the fact that rural unemployment will continue to amount to 5 millions even after the Wadi El Jedid and , the High Dam and any other land reclamation projects. Not even the projected industrialisation will decrease this statistics.

The Egyptian village has become a homogeneous economic unit working under the system of land ownership centralisation and crop cycles. Hence the peasant goes out of the isolation of this land ownership to take part in co-operative land production.

In the light of this new agricultural policy, the planning of the village becomes dear. Its new economic formation influences the social aspect of the various agricultural sectors. That I have already defined in a past study on co-operative forms, family forms and large estates: The first includes the owerships that amount to 5 feddans, the second the ownerships that range from 5 to 20 acres after their centralisation and in the third the peasant is only a labourer.

The minimum standard of living in the various sections are determined and on this determination will be based the habitation units for each of them. On this will be built the new rural housing plan.

The rural plan will go in two ways. Large and small housing blocks will be built each in the Centre of the land cultivated by its group of inhabitants. The large housing blocks should have enough space for expansion. The different housing groups will be interconnected and each will have its own function according to its size. The habitation unit will be of 15,000 persons capacity as is clear from the regional, rural planning. The rural town will be the centre of the habitation unit. Village clusters will surround it in the middle of which will stand a village surrounded by "isbas". This will vary according to the nature of the various districts and the nature of its housing blocks distributions.

There arises the question of centralisation of services and the distance to work it would incur for the peasant. In other words the relationship between the

peasant and his land and that between him and the centralisation of services. This has been treated on some occasions by the centralisation of small housing blocks to form big blocks with the necessary services. This will result in the creation of a new kind of rural town of 15,000 inhabitants. This will only be possible if allowed by the nature of the Egyptian countryside either in the way of land cultivation or the state of its communications. Only on the basis of the evolving into a co-operative agricultural system can this be achieved. This development may evolve so as to centralise the housing unit to amount to 200,000 inhabitants that is the whole planned regional population. This will of course influence the first plan t at makes for the creation of small villages and "isbas". However, it is really the future of the agricultural formation as planned by the nation that will finally determine the right rural planning.

Whatever plan is to be executed depends on its final success on those who are the prime benefiters of such planning namely the peasants. On their co-operation and comprehension will either stand or fall these projects. Not only is their co-operation in the execution of the plans needed, but also an evolution of their living habits that would upkeep the new projects. A sense of public responsibility should also be cultivated. The propaganda organisms helped by the popular organisations should make clear the project and its aim to the peasants so as they could be prepared to the idea of living in these new constructions.

The fate of the village and the extent of the peasants cooperation well alsone determine the future of rural housing.

The Future of Rural Housing

The housing units vary according to the difference of the fertility, the type and production of the land in either Delta or the North of Egypt. The house also differs in its formation and size from one part of the country to the other according to the housing needs. In the South and Center of the Delta large and two-storied houses abund, the size and the two-storied houses decrease as we go to the north, east or west of the Delta where the land is less fertile and the size of the housing groupings decreases and its decentralisation increases as well as the distances between the houses. The building materials also change with the region according to the climate, the nature of the land and the subsoil water.

Hence the general formation of the land changes with the economic and social status of its owners. The attachment of the peasant to his land and home increases with the increase of fertility of the land. Hence this

attachment decreases as we go to the northe, east or west of the Delta. The size of the family also decreases with the decrease of fertility. The habitation units become more decentralised and the house becomes smaller in size. The problems of rural housing change from one place to the other. Hence our need for regional planning becomes more important.

THE IMPROVEMENT OF THE ENVIRONMENT

The study of a large number of villages has been limited to a survey of the economic, social and natural aspects of these villages so as to draw a clear picture of the housing problems. The researches then started to draw up some basic principles for the improvement of the Egyptian rural environment enterior or exterior without paying attention to creating a criteria for directing rural housing. The housing improvements were limited to the improvement of some important aspects of the rural house such as the flooring, oven W.C. or making use of materials to treat the superficial waters that affect the foundations of rural houses. The improvement of the-inside-the-home-stables have also been handled as well as finding suitable places for the animal fertilisers. Suitable places for sloring the dried straws have been studied. Also the creation of fixed furniture has been contemplated. All however are studied on personal and local standard.

LONG RANGE AND SHORT RANGE POLICIES

The rural reconstruction goes under the long range planning. The improvement of the Egyptian environment may be included under that of the short-range especially in the range of evolution of the unstable elements in the rural house which come before the oven, furniture units, the elemination of straws and the evolution of the village planning on the basis of future plans.

THE HOUSING EXPERIENCES

The experiment may develop into making models of new rural houses with different sizes to suit different levels of rural inhabitants especially in new cultivation areas and new expansion of some villages that have met with misfortune. These experiences may be taken as a field of research of the changes these houses undergo according to the different uses of the owners. To be studied also are the different building projects in the regions of Inchass; Zaafasaan, Abis and the Liberation District, Kafr Saad in which the villagers have tried to create some of the aspects of their old houses such as closing the outer openings of the new houses, paving some of the open yards not using the backward service streets or again trying to build new ovens in the houses because the peasants did not accept the centralised ovens and stables. Hence the importance of preparing

the new inhabitance for the acceptance of the new buildings is clear. They should also be made to understand the importance of the extent of the evolution that their social formation will subdue in the future. There should also be enough space for expansion.

THE SITUATION OF HOUSING

The natural survey of the villages that has been made found that the majority of the Egyptian houses are not in a state to perform the functions of housing completely namely to be a resort, a place of security, sanitation, and moral peace. The building materials no doubt show the state of housing in the country. We find that 80% of the houses of a village like Mashour in Giza are built with mud bricks and also 65% of the houses of the village of "Kinawa". The percentage of buildings in "Kinawa" of red-bricks and stones reach 29%. The village of "Nagaa El Kara" in Aswan has 11% of its houses in red bricks of stones and the remainder in mud bricks. These aspects change a little in the Delta, we find that the village of "Shatanouf" in the country of Aswan has 99% of its buildings of mud bricks that of "Singarg" in the country of Manouf 90% and that of the "Rabamea" in the country of "Minia El Kamh" Sharkia 98%. The same could be said of the nature of house flooring as well as the roofs that carry piles of straw and animal dung.

These statistics mean that 95% of the houses in the villages are incapable of performing their job in the future life of the peasant. Hence the extent of the problem amounts to 4200 villages and 1500 "isbas" and "nagaa". The matter should be considered on national level. The density of housing reaches 2 persons per room. The problem however does not lie in the space but in the quality of housing.

The New Divisions of the Rural Society

The future of the habitation problem is connected with the future of the village. Likewise the new divisions of the rural society in its different aspects will determine the size of the problem. In the light of what has already been studied in agricultural divisions and the increase of the density of population on the cultivated land and its relationship with the standard of living and the extent of the left-overs, the new social division will be determined in the different regions for those who plant the land as well as for those who work in agricultural industries.

It was found that in the country of Ashmoun south of the Delta 63% of the population work on the land 2.2% in light industry and 8.8% in personal services and 20% are unemployed. In the agriculture the increase on cultivated land qmounts to 50% in larger districts and 30% in the smaller ones.

The percentage differs from one village to the other according to the amount of the land cultivated and then the difference in the supposed number of the owners on the basis of 5 acres per person and the small owners and the supposed number of large estate owners. We find that 94% of land owners own less than 4 acres and the income is no more than 200 a year and 4.2% own what could make family farms of 4 to 20 acres and 1.6% own more than 20 acres on which work land labourers. 70% of the owners of less than two acres work also on the larger estates 352 of the land is rented by people who have no land ownership. If the new rural planning will be drwn to the rehousing of what the land can maintain and within the new agricultural formations that will ensure the maximum production, we find that in a village like "Shatanouf" of 5230 inhabitants is overcrowded by 895 persons. These with the percentage of people in Ashmoun that do not own anything and that amount to 35% of its population should be put up for redistribution in the national habitation plan.

The excess amounts to 302 and 502 of the population of the village. We cannot cut this excess only from those who work on the land as owners or renters neither can we do so from the excess of those who are unemployed and that amount to 1000.

The future of the village as a basis for rural planning becomes clear. The population of the village will be about 4335 persons of which 2730 work on the land and the rest amounting to 1605 in agricultural industries, communications, trade and services. If the village is to have 624 landowners of whom 550 owners own ownerships of from 4 feddans amounting to 548 acres equaling 30% of the cultivated land. 61 owners own ownerships of 4.19 acres and these may be counted as family farms that amount to 420 acres that is 22% of the land. As to the rest which constitutes the large estates they amount to 870 acres that is about 47.5% of the surface planted. On this work the agricultural labourers. This percentage is near to that if the village of "Minwat" where 75% of the population own less than 5 acres, 11.6% own between 5 - 25 acres, 1.8% own more than 20 acres and 11.6% own nothing, 9.7% are owners, 15.1% renters, 16.6 agricultural labourers, and 58.6% work in other things.

We can now determine the size of the different agricultural sectors and their social formations. If an owner represents one family of an average number of 4.3, we may consider the number of families that would live co-operatively after the collectivisation of their lands to amount to 550 families. The families living on agriculture are 61 families and 14 families have large ownerships, and as has already been said before, 70% of those owning less than 2 acres work also on the large estates.

Hence the problem of housing in the village is limited to these groups:-

550 families that fall within the realm of co-operative cultivation and that furnish the large estates with labourers.
61 families work in the realm of family farms.
14 families own large estates on which work the agricultural labourers.
373 families work in agricultural industries, services, trade and communications.

Each of these social formations has its living necessities that determine the size of the convenient housing unit.

The fate of the increase in population

If the agricultural land of this village cannot maintain more than its present inhabitants at the present time, it cannot maintain more in future. Hence any new increases should come under the national planning so that it would be absorbed by agricultural industries in small units of 15000 persons and in the larger centers that serve about 100,000 persons. It could also go under the immigration to new cultivation areas or industerial production centers. We must mention here that the new agricultural divisions will help to a large extent to decrease the size of the rural family.

The Social Formation of the Village:

A close study of the family sizes on the basis of which we could determine the different rates is necessary, so as to plan the habitation units either within the village or outside it in the new habitation blocks or the new "isba" that are dependent on it. It has been found in the region of this village that the percentage of the family that is made up of one member is 7.6% of 2 persons (2% of 3 per 15.4% of 4 per 16.9% of 5 per 15.1% of 6 per 11.4% of 7 per 7.6% of 8 per 4.5% of 9 per 2.7% of 10 per 3.8%. On the basis of these statistics we can form the average statistic of family members as of three sizes small - medium and large. The percentage of the families that are less than 3 persons amounts to 21.8%, the medium sized families amounting to 2,3,4,5 reach 47.4%. As to the families whose number is above 5 persons they amount to 30.8%. If we foresee the disintegration of big families in future which would raise the number of rural families, we could say in general that the small families percentage is about 25%, the medium - sized about 50%, the large about 25%. On these basis we could have the percentage of the 3 different housing plans for each of the different groups of people that work in agriculture.

We must mention here, the difficulty of social analysis and whether we depend in this panning on the biological formation of the family or the complex families which vary from one village to the other according to the economic, social and natural condition. In the village if Sakara in the Giza we find that there is less than a family for each house, that is uninhabitated houses exist. In Dahshour each family has a house, 1.1 family to a house in "the Kanawat" and 1 family to a house in "Nagar el Kada" near Aswan. These percentages increase in the centre of the Delta and its south and decrease as we go north east or west. The average house contains 1.5 families in Langeog "Manoufia" or 1.45 families in "Shatarioud" "Ashmoun". In the "Rabaamea" "Minia el Amili Sharkia" the rate goes down to I house per family. The rural housing should neverthless, be planned or the biological formation of the family while giving the house the chance to expend vertically to meet the complex families that live under one patriarch.

We must state here the extent of the influence of the complex family on the rural house, especially after the death of the patriarch. The house then submits to changes and divisions according to the biological division of the complex families. The land of rural housing should in future put an end to all that or at least restrict its practice.

The Living Necessities and the Elements of the Housing Unit

The study now deals with the necessities of the individual in the different agricultural sections. Hence are determined the role of the house in its three elements service, storage, and stable. The analysis of the present house of the peasant may be the basis of making clear in general the living necessities. Hence we could determine the necessities for the new rural formation. Since the previous studies have only dealt with the general aspect of the rural house, we should fix the spaces of the houses and their sizes as well as what they contain according to the rates of income per rural family that are determined by the land owner slip as well as the animal possessions and also according to the social formation of the families.

The Position of Furniture And The Housing Unit

The rural statistics give us a picture of housing in the country. From it we could draw the size of the housing problem in connection with the living side. The village "Mannawat" "Giza" has 27% of its houses containing beds and 22% containing mattresses 5.5 have carpets 32% have "hassir" 38,5% have cupboards, 13% have chairs and 70% have wooden boxes. This means that 33% of the houses have beds mattresses "hassir, wooden boxes, closets and that 1/3 of the house do not have the necessary living means.

This percentage differs from one village to the other according to the income of its members and which reaches in this village £22 a year. Hence appears the need for built in furniture in the new plans and the upholding of the furniture industry.

The Position of the Oven and The Housing Unit

As for services, the village of"Nagua el Kava" Aswan has in 100% of its houses ovens whereas this percentage is 70% in the "Rashamean" "Sharkia" and 97% in the village of "Singerg" "Manoufia" and 37.6% in the village "El Manawat" where there is a bakery. Likewise in the village of Dahshour where the bakery produces 40% asks of the daily bread. The readiness of the inhabitants of the villages near the town to buy bread from the bakeries is greater than those that are far from it, where they depend on the family oven.

The oven is not limited to baking the bread but is used for warming the rooms during winter. The oven represents one of the elements of the housing unit plan. It represents at the same time a great danger to the village in addition to what it causes in bad ventilation and smoke. The position of the oven in the new house is determined by the standards of housing that will fit in with the new social formations that the new agricultural formations will create. This goes for those who come under the co-operative cultivation where the reason for the being of the oven is negligeable, there being other means of heating. The same is true of the labourers that work on large estates. As to the family farms, their need for the oven will remain so long as the co-operative bakery has not justified itself in the village.

The conventions in the village are apparent in connection with the oven, the baking of the bread and the attitude to the co-operative hakery. It is a mistake to consider rural conventions that stand in the way of progress for which the new planning aims. If conventions are still strong though the contrary has been proved in the village of "Awaga" "Sharkia" it should not continue so in the future development of the economic and social life of the peasant. We must here state the importance of rural illumination and the preparation of the rural society for the new planning. If we give the peasant more bread in the bakery than he would get from his home oven he would no doubt be attracted to the bakery. Hence we would make equal the treatment of the rural dwellers and the urban dwellers by the state who shares part of the expenses of the bread. The straws on the roofs could be then dealt with either by storage or industrialisation. It is worthwhile here to mention that the Ministry of Provision suggests the use of Mexican type ovens that could bake bread made of wheat and corn of the type that is used in the country. The oven costs about £200 and

its productivity amounts to 1700 loafs of bread an hour. Calor gas could be used as fuel.

The Means of Working in the Housing Unit

Besides the oven, there are problems of cooking as in the use of the fuel "Kanoun" or the kerosen heater etc. The position of each depends on the abundance of the fuel necessary for each and its value in connection with the peasant. The fuel rural problem still stands. We find that the percentage of the families using kerosene heaters augment as the village become nearer to the city. In the "kanawat" village Giza 45.5% of the families use the kerosen heater and 24% the fuel "Kanoun". This is contrary to what we see in most of the Egyptian villages where the rate of the fuel users amount to 90% of the families of the village.

A great deal of research was done on the Egyptian oven to evolve it and to avoid the smoke that rises from inside, the danger of fire, the loss of a great deal of energy and the preservation of fuel but all these experiments were made on the basis of the use of the present fuel, the stalks of corn or cotton, and not on the new type using a new fuel. These experiments were made for the benefit of cooking and not heating that may help in future to cover up this side of the function of the oven. All these experiments were made on the basis of considering the level of work of the rural woman at zero that is the level of the flooring which must be corrected by raising it to 85 centimeters above the surface of the flooring as is done in some of the experiments, in the rural ovens in some West African countries where there is sufficient space for storing of the elements of fuel and other places for keeping the pots which raises the rate of cleanliness in the house and raises the physiological being of the peasant from the floor. At the same time, we would save the animal dung for its use in fertilisers instead of drying it up for fuel purposes. This change from another point of view will lead to the imperative use of the table instead of the "Tablia". The "tablia" does not contain a special place in the house, the table could be attached to the wall and could be either closed or opened according to the needs. Hence there opens new realms for the evolution of the rural oven in the housing rural unit. This is one of the study cases in rural housing.

The Position of W. C. in the Housing Unit

Let us turn to another important rural factor. The rural W.C. has been subjected to various experiments to find the cheapest ways of building it, using it and of getting rid of its discharges. These studies, however, have not tackled the position of the W.C. in connection with the place of bathing and washing. The problem of the W.C. is of primary importance from the sanitary point of view. Its relation to the other services may influence its position in

regard with the other factors of the house. This problem also forms one of the kinds of study cases of rural housing.

The analytical studies in "Miyt Gamr" "Giza" prove that 25% of the houses have W.C. and this percentage may reach 30% in a village like Kanawat Giza and decrease to 20% or 15% in many of the villages that are far from the cities. This means that 75% of the villages do not have W.C. This should be considered and the parts that form the rural W.C. should be industrialised and distributed in different forms. Fit latrine with which the peasant can make use of this discharges as fertiliser and Bared-Hole latrine which is the type that uses holes or a better type like the septic tank private whole in which the discharge could be used as fertilisers, the Septic toilet if the building space is sufficient, the Agna latrine if the peasant takes good care of it. All these latrines have evolved in the use of New-Thick latrine that could serve with its well and trenches for the evacuation for a large number of W.C. bathrooms and washing rooms makeing imperative its use in the near villages.

The Position of the Bathroom in the Housing Unit

The percentage of bathrooms is lower than W.C. in the rural areas. In the village Kanawat Giza 30% of the houses have W.C.s but only 1.6% bathrooms. In "Naga a el Kara" Aswan 1.6% have W.C. and 2.8% bathrooms, in "Singers" Manoufia 80.7% have W.C..S and 1.32 have bathrooms in "Rabemea" Sharkia 20.5% have W.C.s and 5% bathrooms. This shows the importance of the evolution of the rural W.C. to incorporate a place for bathing and washing especially when the use of pure water per person has increased from 4.6 to 2 in 1956 to 8.6 in 1961. The problem of the water storage in the rural house arises and the possibility of the use of its waters from the W.C. quarters, bathrooms or the kitchen. This may be done through the construction of a tank for water at the high of 2 m in a central place, between the W.C. and bathroom. It could be filled by hand and two pipes are attached to it on the end of one a tap and on the end of the other another tap or a shower. The feeding of these tanks could be done co-operatively through the use of a small car that brings the pure water from the source of pure water in the city. The tank could be directly connected with the pump if it exists. In "Kanawat" 75% of the families take their water from the public pumps 20% from the private pumps and 1.5% from private taps the rest of the percentage amounting to 3.5% from the water of the canals. The use of water tanks decreases the use of other means of water storage., like the "reer" or "pistella" or "balaas" etc. In "kanawat" 58% families use "reer" storing for water. 19% families own "pistella" for water storage and 9% families use the "balass" and the rest use pots. These conventional storing recipients are one of the elements of the low sanitary standard.

The size of Storage in the Housing Unit

If the need for W.C. is not greatly influenced by the economic or social formation of the family, the need for storage room vary according to the different social needs. The storage in rural houses is divided into two divisions. One for agricultural products like hay and grains and the second for daily use like milk, rice, fat, or household utensils. In the "Awaga" Sharkia the houses whose owners have from 5 to 20 acres contain a room of 2 m 15 and a storing room of 2m,9. The houses owned or rented by owners of less than 4 acres contain a room of 2m12 and the stored products are put in another bedroom. As to the third type of storing room that is used by the labourers or employees in services, trade or education, it is small of 2m9 and is restricted to the daily storage of grains, food and utensils. The houses of the large estate owners of more than 20 acres and the storages attached to it have special significance. It may be separated from the house with the stables. Above 95% of the roofs of the villages are used for storage of dry plant or straw of rice or dried corn or wheat. The inner yards are used for storing the agricultural machines.

Hence the problem of storage in the rural house is an important factor in its natural formation. If it were possible to eleminate some of the items stored or to change its formation it would result in a change in the use of the spaces of storage in the rural house. If the corn stalks could be pressed after it was cut and made soft and some chemical products added to it so that would it uphold the cubes that would result from the pressing, it could then be stored beside the kitchen or on the roof. The same could be said of the rice stalks. These fuel items could be done away with if the industries that could use it as fuel were to be founded. These industries use paper and wood to make light building materials. Such industries would be founded by the center of Agricultural Industries. These centers serve 100,000 people. The return from these productions would be exploited in other ovens of the kind that the Ministry of Provisions has asked the Military Factories to produce. This would eleminate a very important element of fire and would stop the deterioration of cleanliness.

The planning of the house should be generally done on the size basis and not the space basis even if the peasant is forced to use the ladder to reach the high places.

The storage of hay is connected with its use as forage. The animals are related to the use made of them in turning the "tabout" or"sakia". This use and the use of dung as fertiliser influence the position of the stable in the country house.

The Position of the Stable in the Housing Unit

The position of the stable differs from one village to the other. In "Kanawat" "Giza" the houses having stables amount to 23%, 76% in the "Rabaamia" Sharkia, 77% in "Singerg" Menoufia, 53% in "Nagaa el Kara", Assuan, the stable comprising 15% of the area of the main house.

The position of the stable depends on the different sectors of the agricultural whole and to the extent of the use of motors and pumps in co-operative irrigation or tractors in co-operative farming especially in the sectors of co-operative farming or large estates. In both sectors the function of the animals will be limited to reprodection. The relation between the peasant and his animals would be weakened from its functional aspect and also if he was convinced that it received sufficient care and that its production was marketed co-operatively. The opinions of the peasants differ on this account. In "Awasga" Sharkia some peasants agreed to the separation of the animals and their collectivisation in the collective stables if they had sufficient assurances of their being in good hands, some peasants agreed that the animals should be collectivised if the peasant retained his stable and if collective stable could be placed in a central location and finally some peasants wanted the stable to remain in the house. Hence the rural house in future may not be built on the basis of the present economic and social situation of the peasant which also determine his culture and beliefs. They will base themselves on the future social and economic conditions which will be determined by the rural planning to be executed after a period of illumination.

In the sector of family farms, the position of the stable may remain a completing part of the rural house, even if the use of animals was restricted to reproduction. If the industrial developments in the state could give the peasant electricity and machinery that could limit the animal functions to animal productions, animal prodution would be greatly increased. Here we should compare the value of animal productions and the expenses of irrigation and cultivation by co-operative machinery. The animal value would complete the cultivation value of the economic being of the village.

The value of the animal capital in the Egyptian countryside changes according to the natural and cultivational conditions of the village. In "Kanawat" Giza we find that the animals per family (70 families) amounts to 3 in cattle, while in "Sakara" Giza it amounts to 2.8 heads of cattle and 2.8 heads of sheep and 10 hens. In Dahshour Giza, the statistic is 1.8 head of cattle, 5 of sheep and 7 hens. The average of animal possession per family hence amounts to 2.6 heads of cattle, 1.6 heads of sheep and 8 hens.

On these basis the size of the stable and poultry quarters may be determined. They may be either interior or exterior. With the problem of the stable and its relation to the house appears the problem of the fertilisers and its deposition either inside or outside of the house which results in the village uncleanliness. This problem may be dealt with by storing the fertilisers in special pits beside the fields. The co-operative or collective stable will avoid the shortcomings of the in-door stable.

The Position of the Yard in the Housing Unit

The stable is sometimes connected with the yard of the house or a special yard for the stable. Hence the importance of the opened yards as an element of the house. In "Magaa el Kara" Asswan there are enterior yards which are to be found in 102 of the Rabeamea houses and 6% of "Singerg" houses in Manoufia.

It is difficult to differentiate sometimes between the opened and almost closed yards. The latter are more numerous than the first. The yard serves many purposes. It serves for airing, washing, cooking, raising of poulty, machine storage, and has an oven for summer use. The enterior yard is hence used of different purpose which lead to the low standard of cleanliness especially if it were used as an animal stand. The enterior yard comprises 20% of the total space of the house.

The enterior yard if it is found in a modern house could not fulfill all its former purposes. Therefore the purposes of the yard should go in two main directions. It should be an extention of the living quarters of the house. The windows should overlook it from the inside so that the big opening from the outside be limited to secondary openings for ventilation. This tendency will influence the type of enterior openings, either doors or windows and will fulldown the construction prices. Also, security inside the house would be achieved. The exterior openings will be small securing ventilation before light. This is a field for subject studies which will determine the sizes, the materials, the fabrication and distribution of windows and doors.

If the stable is to be placed in the house, two yards should be used. The first will be for animals, poultry and machine storage. The stable and the storing room will open on this yard. The second yard will be used for daily living. On it will open the bedrooms and living rooms. They may be connected by an almost covered corridor having on its sides the kitchen, storing room and bath room. This way the service passage will be separated from the principle part of the house. The service passage could be eliminated and one passage only used. Some similar designs were executed in the reclaimed region of "Abbis".

The Standard of Crowding and The living rooms:

If the social formation does not influence the previous elements of the rural house, the size of the living and sleeping quarters, are determined by the different sizes of the families, and their living needs in this ragion as well as the extent of elasticity of extention of this region, so as to meet the social development of the complex family. The problem of housing in the country does not be so much in the rate of crowding as in the bad state of housing. The rate of density amounts to 2 persons per house. It is possible to retain this reasonable standard in the new housing. The meaning of this is that a family of five or less needs two rooms while a family of 6 or more needs 3 rooms. The families work in the different sectors of agriculture, commercial services, agricultural industry or public services. One of the 3 rooms could be used for reception. Hence it should be placed beside the door. The living quarters may be extended from inside the rooms to the living yard which may be covered with a shed covered with growing plants.

The measures of the rooms range between 2m15 - and 2m29 according to the income standard and the housing needs in the different work sectors. These rooms can support an upper floor in future in a vertical expansion meeting with the living needs of the complex family and to limit from the expansion of the village at the cost of the cultivatedland.

The size of the Housing Unit

On the basis of this analytical study of the elements of the rural house, the size of the housing units may be determined. These sizes will be homogeneous with the different sizes of families in the different agricultural works, as has been shown before. Hence the size of housing of the village will be fixed. Of a village like "Shatanouf" a picture of housing could be drawn. In the light of the previous studies in the following fashion.

14 Big housing unit with storing room and stable separated from the house and a housing block for agricultural labourers.

61 21/30% housing units of 3 bed rooms with stable and bath quarters and yards.
40/702 large housing units of 2 rooms, stables, storing room, bath quarters and yards.

550 137/25% small housing unit of 1 room and services
276/50% average housing units of 2 rooms, services and yards.
137/25% large housing unit of 3 rooms, services and yards.

372 93/25% small housing units of 1 room and services

186/50% average housing unit of 2 rooms and services
93/2% of 3 roomed housing unit and services.

The size of the housing district in the village will hence be determined by the needs of housing in the different work sectors of the village.

In "Awasga" "Sharkia" (25.00 people) the famolies owing from 5 to 20 acres (because there are no larger ownerships in this village) need the following housing units:
A - Family of 4 or less
1 room 2m 15 - 2 rooms 2m 25 and 2 store rooms 2m 15 + stable 2m 15 + bath quarters 2m 4 + yards 2m 16 and kitchen 12m; 14 the housing unit amounting to about 2m 100.

B - Families of 6 or more:
1 room 2m 15 + 3 rooms 2m 35 + 2 store rooms 2m 15 + stable 2m 15 + bath quarters 2m 4 yards 2m 16 + kitchen 2m 14. The area of the housing unit reaches 2m 115.

As to the families that own each less than 4 acres or renters their needs are:

A - Families of 4 or less
2 rooms 2m 25 + storing room 2m 19 + matbane (room) 2m 12 yard 2m 16 + the bath quarters 2m 4, the kitchen 2m 4, the stable (if there) 2m 15. The space of the housing unit reaches 2m 85.

B - Families of 6 persons or less:
3 rooms 2m 35 + storing room 2m 9 mathbana (room) 2m 12 + yard 2m 16 and the bath quarters 2m 14, kitchen 2m 9, the stable (if there) 2m 15. The space of housing unit reaches 2m 95.

As to the families that do not work as agricultural labourers or in different services in the village-, their needs run as follows:

A - Families of four or less:

Hall 2m 10 2 rooms 2m 25 + bath quarters 2m 4, kitchen 2m 4. The space of the housing unit reaches about 2m 50.

B - Families of 6 or more:

Hall 2m 10 + 3 rooms 2,35 + bath quarters 2m 4 + kitchen 2m 4. The space of the housing unit reaches about 2m 60.

The people of the "Awasga" Sharkia once more and in a general fashion estimate the different levels of the housing units in the village in the following fashion:
30% of families each having a house unit measuring 2m 145
20% " " " " " " " " 2m 100
40% " " " " " " " " 2m 70

Hence the peasant always simplifies matters even when dealing with problems. A matter that should be considered in the determining of the size of housing on the basis of the economic and social future of the village

The Present State of the New Housing

In the light of the previous studies we can determine the relation between the natural formation of the village and the new housing. This is done on the basis of the average housing per person. If we take the biological basis of the family as basis of the housing unit, we will find that the complex family is the basis of the housing unit in the present village. The average family number per house in "Awasga" Sharkia reaches about 1.3 families per house, in "Shainanouf" Manoufia 1.45, in Sangeog 1.5 in "Naga el Kaha" Aswan, "Rabamea" Sharkia "Dahshour" and Kanawat Giza 1, and in Sakava Giza the percentage is less than 1. This means that ther are uninhabitated houses in a village like this. In "Awaga" 45 houses out of 530 are uninhabitated and the percentage of buildings for housing in it is 85% of its buildings and these comprise 85% of the surface of the village. The housing space then amounts to 72.25% of the village.

Housing Space per Individual:

The space in housing per individual differs from one village to the other as is clear from the following chart on the basis of considering the average number of floors to a house and that the first floor occupies 33% of the surface of the house:

The average persons per house in Shatanouf amounts to 6 the average space for individual is 2m 132. In Nagaa el Kara the average space of house is about 2m 59 and in Singerg it amounts to 2m 116 and in Rabasmea to about 2m 110.

The Size of the New Housing

If we look at the statistics of the numbers and sizes of housing units of different measures in Shatanouf Manoufia and if we add to them the measures in the following chart, we can determine the space of the housing on the basis of a house having only one floor.

The villager	Number inhabit.	Average Number of floors	Surface village	Surface built in housing 75% from the surface of the village	Surface of village	Surface per Individual	Number of Persons per house
"Nagaa el Kasa" Aswan	1850	1.2 that is 1.7 floors	7.50 acres	2m 125	2m 25280	2m 3.7	4.3 per house
Singerg Manoufia	7500	1.3 or 1.1 floor	56 acres	2m 114400	2m 125840	2m 16.8	6.9 per house
El Raameaa Sharkia	900	1.54 or 1.18 floor	6 acres	2m 18900	2m 22400	2m 25	4.4 per house
Shatanouf Manoufia	550	1.3 or 1.1 floor	5 acres	2m 110250	2m 121275	2m 22	6 per house

Number of Housing Units	the Surface of the Housing Unit	Total Surface
14	2m 150	2100
21	2m 135	2835
40	2m 120	4800
127	2m 60	8220
276	2m 70	19320
127	2m 100	15070
93	2m 60	5580
186	2m 75	13950
93	2m 100	9300
New Housing Surface in the village		2m 72175

If the number of individuals in the village amounts to 4335 after the excess over the cultivated land-capacity is cut off. We find that housing surface per person is about 4.3 that the average new housing space amounts to 2m 72 and that it can reach 2m 85 if we add the space of the wall to each house.

From this it is clear that the average house surface in a village like Shatanouf Manoufia is about 2m 132. The average new housing surface is 2m 85. This means that there is an increase in surface in the present housing that could be directed to other uses in the village. That is without considering the posible change in population, as has been stated before, within the rural regional planning.

If we consider that the total surface housing in the new village is about 60% of the total village surface, the surface of the village in its new planning will amount to 2m 130300 or 28.6 acres with the saving of 6.4 acres or 18.2% of the present village surface this space could be made the centre of the village with all the services collectivised in it.

Appartment Buildings in the Country

There may appear in Shatanouf a new kind of housing with many floors if the elements of construction allow.

If the elements of construction allow it, a new kind of housing with numerous floors will appear in "Shatanouf". In this it will be similar to urban economic housing which coprises housing units that comply with the workers' needs in the services trade and direction. If we consider but one half of the necessary units for these constructions,

that is 186 units per a village like "Shatanouf" distributed on four floors we would get a space of (13950 - 548705)= 8463 sq.m; or 2 acres that could be added to the central part so that it would reach 8.4 acres.

Educational services in the Village

The services of the village are then determined on the basis of the different needs. In the realm of education we find that the students from 6-12 in beginners schooling amount to 150 student per 1000 persons or that the village needs one beginners school for every 2.000 persons. The students in the primary schools amount to 40 students per 1000 persons or that the country needs 1 primary school of 360 students per 9000 individuals. The school is also considered as an athletic centre in the village.

It has been found that a large number of beginners and primary students go to town for their school. A matter that should be considered in planning so as to reduce the towns density of population. The employers, teachers and others working generally in the country should be encouraged to live in it, by procuring for them the suitable housing as well as making communication between town and country easy. Hence appears the needs of appartment building in the country.

Health Services in the Village

The village for its health services depends on the rural hospitals and the health units in the central housing units. This makes the health services distribution depend on regional planning.

Social Services in the Village

The collectivised unit that serves about 15000 individuals is the centre of social, cultural and sanitary services of the planning units which should also include the administrative services. This does not stand in the way of having social centres in the villages that are dependent on the rural town as a centre of a planning unit. The rural town needs a veterinary centre, an agricultural illumination centre, other than a co-operative centre, a village bank, an assembly hall, a mosque which would all be united in a public square.

Trade Services in the Village

The trade services of the village differ according to their regional distribution and their distance from the town or the different weekly markets. The size of the trade services depends on the purchasing capacity of the villagers which in turn depends on their incomes. In

"Bernsht" (Ayot country) "Om Kanaan" "El Shoubek el Gorby" (Baderashin county) more than half of the families spend £ 7 = monthly and 35% spend between £ 7-10, 12% spend £17 and 3% spend £ 33 a month. The average of spending ranging from £ 1-2 a month. 30% or 50% of the spendings are on the following items beans, meat, fish, vegetables, sugar products, oil, lard, dairy products and cheese. The expenditure on clothes amounts to 8%, on furniture 1/2% and on grains; starches and bread ingredients 20% to 30%. The rest is spent on addictions health treatment, amusement, etc. The present picture of the trade services in the village gives us a basis for determining the size of the different shops in the village. In Sakana, (Giza) whose population amounts to 11432 (1960) we find the trade services distributed in this fashion:

16 groceries - 4 clothes shops - 2 barbers - 12 tailors - 2 shoes - 2 vegetables - 1 butchery - 2 bakeries and 11 commercial shops. The village has trade ties with the Badrashin which has resulted in its small number of shops. In "Kanawat" Giza (population 6258, 1960) a rural town, the trade services are distributed as follows:

the shop	number	the shop	number
groceries	42	furniture	3
tailors	8	Concrete	3
Ironers	1	kerosene	1
shocs	3	flowr	2
Plumbers	3	Prass workshop	2
batchers	11	animal feed	5
vegetables	5	restaurants & cafes	4
fruits	3		
		total number of shops	97

The rate is 16 shop per 1000 individual. Comparing this to "Dahshour" (Giza) (population 11768) (1960) we find that the shops in it are distributed as follows:-

35 groceries - 28 cloth shop - 10 barbers - 1 public bakey - 1 mill or about 75 shops at again 15.7 shops per 1000 individuals.

In "Shatanouf" (Manoufia) population 5200 we find 65 shop or 13 shops per 1000 individual.

From these statisitics we can assume the average number of shops in a village to be 75 shops per 5000 individual: destributed like in Kanawat and Dahshour 50 shops go render the main trade center and 5 as subsidiary shopping centres for every 1000 individual of the different village districts.

The Industrial Units in the villages:

Seeing that regional planning makes for an Agricultural Industrial Unit; the villages that depend on the the central village should have some manual industries according to the conditions of the economic & social environment. The industrial unit in the rural town may comprise the following industries: dairies, weaving yarning and spinning of wool, leather, palms, fish", capets,. It could also include some building industries like; carpenting, blacksmithing and the production of ready - made units for building. The Industrial Units amount to 1000 and the centers that service 100,000 individuals amount to 180 rural industrial centres. The Planning of the housing areas.

The planning of the village and the different stages that it undergoes on all levels rural town, village ant "isbas" have been already dealt with the planning of the residential areas in the village is influenced by the work and house environment of the villagers. The tendency of rural planning is different from that of unban planning. The peasent finds in his opened-to-the-inside house whose open,ings are narrow on the outside, a contradiction to his out-of-doors life in the open fields. The housing blocks or districts are therefore hased on the inword sence of life. The same outlook influences the general planning of the village whose life is oriented towards the inside. Hence the element of contradiction between the life in the opened fields and the enclosed villages and its housing blocks, is secured. This is contrary to what happens in the city with its outward sence of life. The life of the urban dwellers is spent between walls which makes for the orientation towards the outside in windows, balconies and opened spaces. This is one of the laws of nature that depends on the element of contradiction in its different aspects. The main streets that connect the various housing units of the village with its centre on the one side and the fields of work on the other side, should not lose their scale in connection with the one-floored buildings on their sides, at the same time they should feel their way along the main streets of the village so that the village may not lose its planning type. As to the streets of the district or the housing blocks they take their way straight to the centres of activity in the village, the assembly hall, the mosque, or opened play-ground. As to the servicing streets, if they are to be found, they should take their way directly to the fields so as not to lose their main function as has been made clear by previous experiences.

The Planning Aspect of the Village

The planning aspect of the village is based on the peasant and his society who influence greatly the picture of the general planning of the village, its districts and sections. The rural aspect also derives its elements

from the housing units that make up the natural nature of the village depending not only on the materials used but also on the natural, social and economic influences. These in turn determine the nature of the housing unit. The nature of the entrances of the roads the streets, and the districts reflects the present aspects of the village and determines, at the same time, the special nature of the district and hence creates the special planning aspects of the village.

The Division of Housing Space

The different stages of the planning of the village will touch the whole nature of the village including its houses and ownerships. The executive steps should therefore be planned. The village could be considered as one unit to be divided according to the modern planning which stipulates the different kinds of housing units and their different collectivisations. It then estimates the basic value of the sites of the housing units to make sure that the total basic value does not surpass the basic value of the built area in the present village. These sites could be distributed to their new proprietors after the assessing of their first ownerships. The evaluation would be based on the new value of the ownership. This way the inhabitants share in the value of the public services such as the roads, streets and public squares. They must also take part in the construction itself. The peasant has shown a favourable reaction because of his appreciation of the technical and material aids the state offers in this field.

The Building Industry

The two sides of the problem of housing are the future of the village and the building industry. The future of the village has had a lot of attention but the building industry has received little attention. The building industry is divided into two parts. The first part includes the local materials for building the general frame of the house such as the walls, roofs and floorings. The other part includes the appliances such as the window and door units - sanitary appliances heater etc. The size of the building industry is fixed by the building needs and the different stages of their execution. The location of these industries depends on different conditions such as the nature and sources of the primary materials and the nature of the productions and their distribution in the different construction areas. The elements of the working force, the energy, the financing and the subsidiary industries may be added.

The Primary Materials

The rural reconstruction is to be comprehensive and will be based on the rebuilding of the village. The village today is the main source of primary products. In the light of this fact is determined the study of the size of the primary products for the present building of the village and the possibilities of the industrialisation of the materials into better products so that the pulling down, industrialisation and the building are done at the same time. The High Dam will limit the amount of clay in the Nile water. The present building materials will make up for the deficiency. In Dahshour the mud bricks buildings amount to 80% of the buildings, in "Kanawat" they reach 65% in "Nagaa el Kara" (Aswan) in Upper Egypt they amount to 89% in "Rabaamea" (Sharkia) they reach 97% in "Sangery" (Manoufia) they go up to 90% and finally in "Shatanouf" Manoufia they reach 99%.

Mud in Building

The use of mud as a new building material isstill a compromising issue. The mud is a material that is good for isolation. It is lasily moldable and auite inexpensive. It has been used experimentally in the new constructions. It was highly recommendable in the village of karsha. The mud however has some shortcomings, it is week and is highly influenced by the natural elements such as winds rain and subsoil water. It has been highly successful in Upper Egypt but not in Lower Egypt. Mud building cannot moreover, support the modern roofing. It is also difficult to use mud as an element of building in regions that are below the contour line 4m above the surface of the water because of the sub-soil water. These areas constitute 50% of the Delta. Mud buildings, as has been proved by experience, do not fulfill the security requirements in the country. As to the physiological side, the eternal attachment of the peasant to the mud is an obstacle to his development. It has a great affect on his present house groupings and his environment. Hence the necessity of a total change, in spite of the various qualities of the mud as a building material.

If the mud from the old village is to be used to build the walls, a way of changing it into a better product must be divised. It could be mixed equally with sand or concrete amounting to 102 could be added to the mud. The mixture would then be pressed into moulds. This is called landerat. Lime in the same amount could supplement concrete. The resulting product will be stronger in resisting dampness and will be less expensive and if lime is an element poor in attachment the moulds could be put in a mixture of concrete and water. If the necessary of sand is not available the mud bricks should be burnt to turn them into red bricks. The land could be made more solid by mixing it with mazout or diatol if the pressing

and mixing machinery were available. The price of mud brick mixed with concrete amounts to £ 4.010 a thousand bricks which is a little less than the red bricks whose price is £ 4 and 50 per thousand units. Materials such rice straw or plant stalks with a certain amount of concrete or some other chemical to make it more solid. All this depends on the weather, the land and the convention of the region.

To make the building easier and more quick the new building material could be made into cubes of 2.5 cent. This unit would be the determining factor in the measures of the various elements that make the rural house as has been done by the U.N. Technical Assistance Board in Lybia. This is one of the fundamental basis of the building industry.

In "Shatanouf" the average space per house amounts to 2m85. Such a house needs 3m36 in walls that will take 2520 units of cubes (25 cent x 25 cent x 25 cent). The average number of the family living in such a house amounts to 4.5 the number of units per individual amount to about 550 units, which means that the planning unit in this region and whose population amounts to 15000 ind: is in need of an industrial unit with a production capacity of about 275000, or 300,000 cubes a year if the comprehensive reconstruction of the country will take 30 years. Hence the size of the industry is determined on the basis of estimating the planning units to be about 1000 units.

The Roofs

The problem is different in connection with the building material of the roofs because of the lack of the primary material in the country. Roof building differs from that of wall building. These facts should form the basis for determining the different roof-units industrialisation.

The roofs differ with the manner of their construction and the materials that are used whether bricks, tiles, renforced concrete or concret units that have already been poured. A great deal of experiments were made so as to decrease the use of renforced iron and concrete. Hence arched sheets of simple concrete of about 50 cent in width and 3.5 m in length are used. They stand on small beams which in their turn stand on the main beams. Hollowed renforced concrete of 3m 5 may also be used or else units of plaster renforced with reeds may be used. Espestos asphalt could be used for embellishment or for protection.

The size of roof construction materials industry is determined on the basis of the average surface of roofing per individual and the size of primary materials used in this industry. The places of its industrialisation depend on the sources of the primary materials

and the nature of the industrialised materials and their marketing.

The element of weight in industrialised material bearing a weight on its transportation, the function of the roof whether for protection or embellishment - should be determined and the necessary elements changed to adapt it to the use decided on.

If we take as basis the village of "Shatanouf" and its average house surface 2m 85 and build on it the surface roof estimation of the productive roof, and that of the carrying roofs we find that the average carrying roof is about 1m 40 and 2m 9 per individual and the average surface of the protective roof is about 2m 25 at an average of 2m 5.5 per individual.

This means that the rural reconstruction in 30 years needs about a yearly 4.5 millions metres surface in prefabricated carrying roofing and about 2.75 million metres of prefabricated protective roofing.

Because this industry is connected with that of concrete and the sources of sand, it could make big industrial centres along the valley in Upper Egypt or on the borders of the Sharkia and Garbia in the Delta. This would decrease the unemployment in the green valley. The number of industrial centres depends on the industrial potentiality of the region and also on the relationship between the centres and the sources of its materials as well as its centres of distribution. The industrial centres may include some of the other building industries as some kinds of light woods. The latter could use as a primary material a large alternative fuel could be devised.

The statistics on different roof building materials in "Singerg" Manoufia, the "Rabaamea" Sharkia and "Nagaa el Kava" is as follows:-

the village	wooden beans plastered	wooden plants & beans	palm stumps plastered	without roof
Singerg	88.3%	7.5%	3.6%	6%
El Rafeamea	97.5%	2.54%	1%	
Nagaa el Kara	15.6%	2.3%	74.2%	5%

Modern buildings does not use these materials. The wooden beans could be used in the wood industry for making doors, stables or store rooms. The transformation will take place within the industrial centres of the planning units.

The Flooring

To the protective and carrying roofs correspond an equal surface of flooring that is basically formed of a simple concrete layer or of a mixture of earth and concrete called Candcrate. Hence the rural reconstruction needs about 7.25 million square metres of this flooring to be prepared on location.

The Openings

The production of doors and windows is centralised in the Industrial Rural Centres that serve each 100,000 individuals and which derives their materials from the different wood factories. The size of the industry of doors and windows is determined on the basis of the number of each of these in comparison with the size of the house. The latter needs about 4 doors and 4 windows at the rate of 15.3% of the built surface and the width of the surface of the door measuring 2m 78 and the window 2ml at the rate of ... per individual. Added to this are the other appliances of ventilation at the upper edges of the walls which could be made of espestos asphalt. The rural building project then needs about 500,000 units of windows yearly for the duration of the 30 years needed for the completion of the project.

The size of the doors and window industry depends also on the surface of the unit, which in turn depends on a number of factors as the amount of light & ventilation necessary and the executive details of these units . This is one of the subjective studies of the architectural factors of the rural house. As to the function of the window it could be limeted to light. It is small in size and is located high on the outer facades. The opposite is true of the windows on the enterior yard. Ventilation could be secured in openings of about 25 cent x 25 cent at the top of the outer walls under the extention of the roof and is closed by means of a net of galvanised mash or of aspests asphalt. The function of the window is limited to light.

In this general picture we could arrive at an estimate of the other side of the rural housing problem namely the industry of building. These estimates were made on the basis of the housing needs of a number of individuals that the land can support. The excess is to be dealt with in the national planning of the state.

The Period of Preparation for the rural reconstruction

Though the regional planning, the village planning and the building industry are of great importance in the rural housing problem, the decisive factor, is no doubt the consciousness of the peasant of his problem and the extent of his co-operation in the reconstruction. On these basis,

the program regulating the reconstruction in its preparatory stages could be put. This will last about 5 years of studies of the reconstruction and the preparation of the necessary organisms for the assessing, planning, execution, education, and training. Putting the regulatory rules of the enterprise in its various stages will also be dealt with in this period. In its preparatory stage, research on planning could be made on the basis of the different outlooks for village planning either within the range of the total village or that of the planning units with all it has of housing blocks. Here appears the importance of the Pilot Projects in rural building.

The Executive Organism for Rural Housing

The size of the technical organism for the new buildings, on the regional divisional basis for execution, is determined. If we consider the planning unit a fundamental unit in this division, we shall need about 100 planning supervisors at the rate of one supervisor per planning unit to be helped by 1000 social supervisors and 1000 agricultural supervisors. 3 of the members of the village council for the planning unit will take part in the Supervising Committee. The number of those working in the preparation and execution amount to 1000 architects helped by 2000 drawers and supervisors. On the level of county, a planner would be appointed helped by a social specialist and agricultural specialist and three members of the Socialist Union will aid them. They will all be under the supervision of the president of the Town Council who is responsible for all the villages of the county. On the governorate level a committee is set up of a planner helped by the social supervisor of the governorate, its agricultural supervisor, and five members of the Governorate Council. The committee will be under the supervision of the governor. This committee will have direct access to the executive central organism of village planning and that has among its members various responsible officials in the Ministries of Housing, Education, Health, Industry, Communications, Social Government, Agriculture, Provisions and Treasury. The central organism in its turn draws the general policy and the executive steps for the rural reconstruction on the basis drawn by the state.

The various assessments will be carried out through the committees of Planning which will then be taken up to the Planning organisms in the centres of Planning to draw up the various plans for the villages to be approved by the High Committee of the Governorate.

The role of enlightment in Rural Reconstruction

The enlightment is not limited to the consciousness of the peasant of his responsibilities in the reconstruction and his consciousness of the problem. It outstrips them to his enlightment of the means of living that would secure the life of the new building. Education plays a large part in this direction. The conditions and the developments of the problem make it impossible to wait for

the new generation so as to perform its role in rural reconstruction. The enlightment should overwhelm all sectors of the rural society, mobilising for this all the means of enlightment and propaganda as well as the Socialist Union to perform its important role in this field. All this will help to reduce the price of building. The peasant himself takes part in building his house under the technical supervision of the state. It secures material help for the peasant in the form of prefabricated architectural materials of unified measures and which are easily transported. The state also studies and applies the experiences of various states in building.

The peasant is ready to accept the new if he finds the convenient alternative as has been proved in "Awasga" Sharkia. The villagers have understood the aim of planning on both the village and region levels. The problem then developped into the fundamentals of the rural house and their evolution in the light of the picture of this research. Also the role that the peasant can play in the various stages of reconstruction.

The increase of Production and Building

The cost of village reconstruction in 30 years has been estimated at 75 million yearly. The expenses might decrease if the rural building industry were to evolve in the fashion already mentioned. Also if the peasant took a part in the reconstruction. The village regional planning for the various economic, social and national planning stages will raise the productivity of the land about 25% if the estimations of the economic specialists are true in connection with the collectivisation of ownerships and the application of the co-operative system in agriculture. The agricultural output is estimated at a yearly £ 300 million. The estimated increase will amount to a yearly £75 millions. This increase could cover the expenses of the reconstruction. The income of the peasant will benefit indirectly in wages and salaries. This may result in an economic boom in the country. It will also procure convenient housing for millions of labourers in the green valley. The reconstruction will be hence completed by an increase in production. The period could be made less than 30 years if the funds provided by the state are augmented plas the past estimation that will be covered up by the increase in agricultural production.

The end

The rural reconstruction planning is based on the minimum living needs of the different sectors of society created by the new agricultural formations that aim at the maximum production on the basis of the state agricultural policy. This finds its expression in the regional planning

which determine the basis of village planning for the inhabitants that could be supported by the land. The number in excess will be provided for by the national planning, industry, agricultural expansion or immigration. The picture of rural housing is completed with the industrialisation of the building materials of the different housing units whose elements are determined by the minimum living needs of the new social formations.

This is done on the basis of a comprehensive understanding of the peasants after preparing them for the reconstruction. We cannot give the peasant the goods house if all his conditions do not help him to maintain this house in good shape. Otherwise the drama that has been accumulated by ages will reinforce itself. The planning and housing project is a project of human development that cannot be built on the fixed reality but on the possibilities of human developments and evolutions. In the light of this reality the stages of planning and housing are determined either in short or long range planning. Planning and housing is a complex matter. The various elements that constitute them must find their completion. These comprise the realms of economics, society, health, culture and nature. On the basis of these, the society can build itself.

I.H.
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