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EXPERIENCES IN THE DEVELOPMENT OF THE NATIONAL PLANNING INSTITUTE'S TEAMWORK

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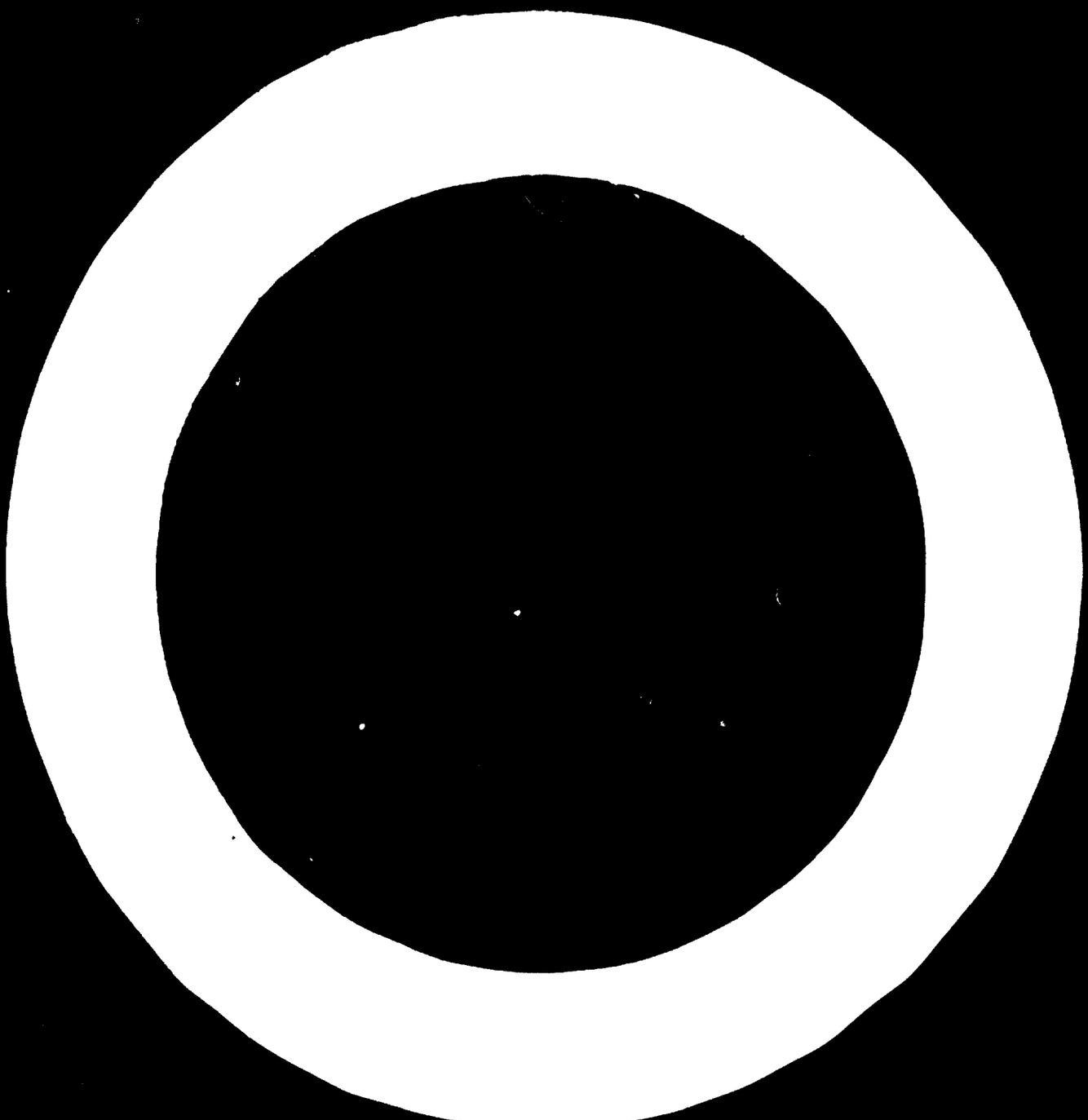

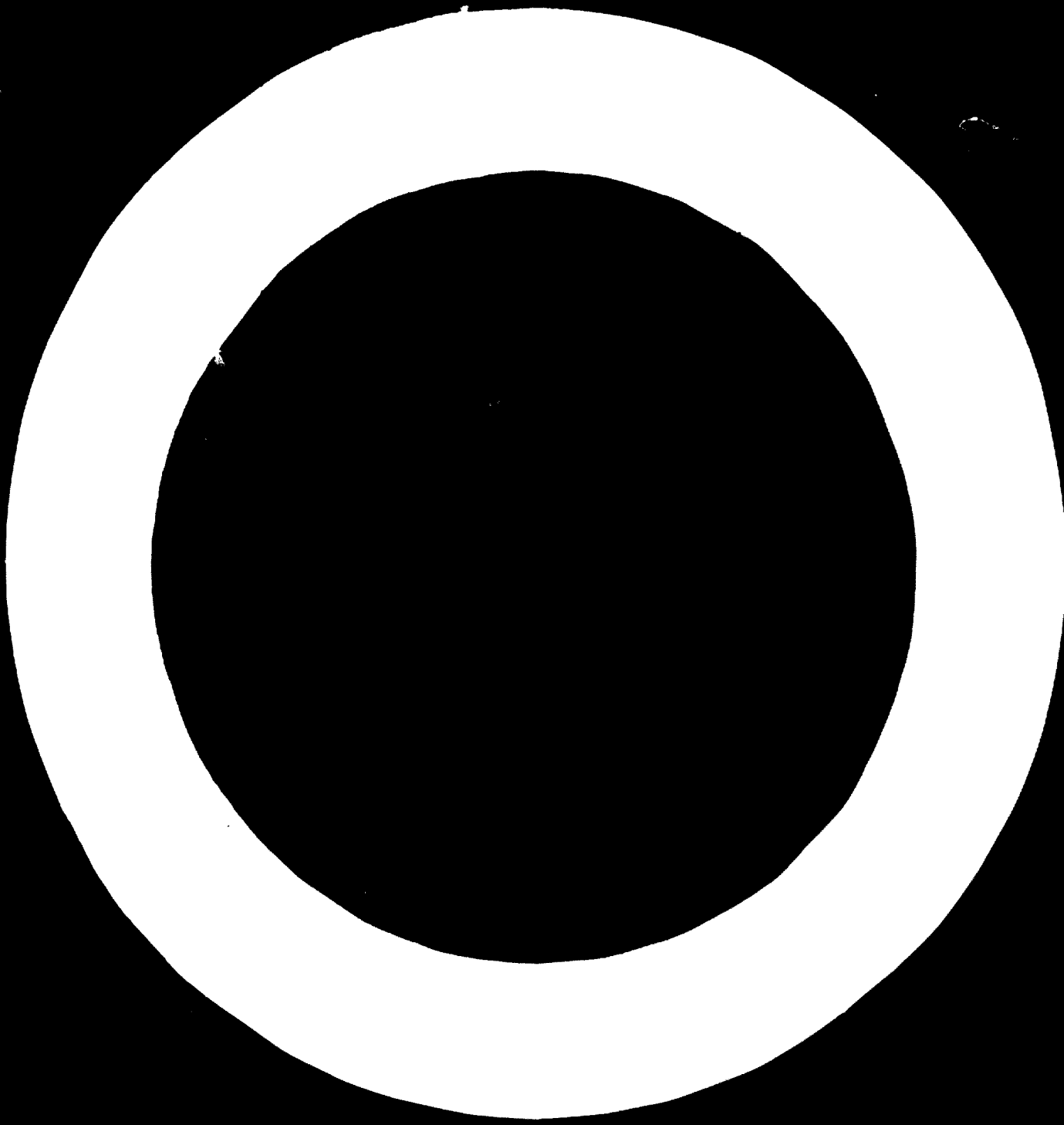

THE FOLLOWING PAPER IS BASED ON ACTUAL EXPERIENCES IN THE DEVELOPMENT OF THE NATIONAL PLANNING INSTITUTE'S TEAMWORK.

FOREWORD.

Regional planning was practically unknown in Cuba before the Revolution, and what was known of it, was purely on a teoretical base. The basic conditions permitting to realize the projects emanating from a regional plan did not exist. This why we can say that, in our country, regional planning was born only after 1959, and during these years, it is finally acquiring a certain degree of maturity.

The development of this discipline can be seen on the structure of the National Physical Planning Institute (Instituto Nacional de Planificación Física); the Institute has acquired, in a short but intense history, the decisional hierarchy that it should have to fulfill its tasks.

Territorial Planning concerns the territorial distribution of labour, the maximum use of natural and human resources, and the organization of the territory for a greater satisfaction of the needs of the population, by means of a correct localization of economical and social activities. On the contrary, we know that where the economical forces act uncontrolled, there are always cases of underdevelopment of the territories, of economical and demographical concentrations at the expenses of the whole country. Of these, we have some

inherited notorious examples in Cuba.

There are many cases throughout the world on which both a sectorial and a territorial narrow-mindedness has driven to uselessness and the scarce profit of the resources, and even to their dilapidation in scarcely studied investments; even if they may be considered within a correct development policy, because of their bad location will not be completely used, and even jeopardize the future developments of the region, not forgetting that economical investments are not only interrelationed, but have repercussions on the adequqte-development of the population; this situation often leads to contradictions that need satisfactory answers.

This whole set of relations established in a region must find harmonious answers in time and space through regional planning, and to develop them, it is necessary to investigate the different fundamental factors thar are coincident with it.

The work requires a high degree of quality and responsability; this can only be assured through teamwork with study groups specialized in the know ledge and valoration of the particular elements which constitute each project, in both the integral and global solutions of the problems that come off the development of each branch of the national economical system, and in the advantage taken of every branch of technical and scientifical know ledge, for its applications in the actual tasks.

For the realization of this idea, we find great

obstacles due to the development conditions of our ----- country. Since, before 1959, the minimum of attention -- and the lack of stimule was given to the development of- science and technique, made us inherit a legacy of back- wardness in science and technique, a backwardness that, added to the fact of our underdevelopment, dreve us, in- our first stage, to an absolute lack of specialists or - research workers.

Nowadays, conscious of the words of our Prime Minister - that "the future of our country will be a scientist' --- future", we have set up the basis to fulfill that task.

It would be too complex a task to realize the studies -- and global analysis, since there is aconsiderable amount of mutual repercussions and the variation of each part - acts as a part of a chain, modifying other aspects of -- the problem, therefore the themes are divided in separa- te sectors.

The plan is elaborated through the integral analysis of- the problems studied separately by the sector study ---- groups, the solution of each branch or sector forming an integral part of the global solution.

The interrelations and the mutual influences between the sectors are studied, looking for the best solution among all the studied possibilities, all this within the frame work established by the National Economical Plan.

CONCEPTUAL FACTORS

In our actual economical and social system, planning is not a development prediction, but it must constitute a project organized in time and territory, a project that might convert into a reality the harmonius growth of all the elements involved.

This is why a study or project of territorial planning is not converted in a plan if it is not fundamented and framed wthin a long or middle term economical plan. The absence of this condition makes any territorial plan a subjective and far from reality conception, even if the methods and facts used in its conception are extremely concrete and scientific.

Even though there have been many studies of many regions and cities attempting to give territorial solutions to the problems of organization or investments presented, it is true that this principle has guided and conditioned the work of the National Planning Institute, in its qualitative and quantitative aspects, as well as the orientation of the Institute.

This is why the work of the Planning Institute has had a different approach in its first stage, where it was necessary to make a plan of economic development, from the one that it will finally have, when this has been made a directrix and a framework of later work, then in the first stage our should and was concentrated in providing the organisms with the necessary instruments and methods in Territorial Planning towards the elaboration of sectorial development patterns that

integrate the National Economical Plan.

The contents of the work of the Planning Institute will-be completely different in a second stage, where the --- main effort will be concentrated in the confection of -- integral master plans of each region or city.

On the other hand, the importance of using the instru--- ments and methods of territorial analysis in the ------- elaboration of the development patterns of the -------- differing economical sectors, has been determined by the geographical and economical characteristics of our ----- country and the orientation of its development; it has - been demonstrated in the previous projects made, funda-- mental for our actual stage of economic development in - the agricultural and industrial compatibility for the -- Perspective Sugar Cane Plan and in the elaboration of -- the Agriculture and Cattle Plan development Project.

These geographical and economical characteristics are -- the following:

- The type of basical production in our --- economy is agriculture, with of produc--- tion and labor force distributed -------- throughout the whole territory and depen- ding on different natural conditions.
- The main part of this agricultural ------ production is destinated to the transfor- mation in industrial centres (sugar cane- factories), also distributed over the --- country and linked by capillary transport network, determinating strong interrela--

tions in each agricultural zone, and ---- between these zones and the export ----- centers.

- Economical development demands the ------ exploitation of productive potentials in- scarcely populated and badly equipped --- zones; this makes compulsory to foresee - strong inversions in dwellings, public -- services and road networks, with the need to study them for each region.

THE LABOUR DEVELOPMENT

One of the first questions aroused when the Revolution - took charge of the country was to solve the problem of - a vast majority of the labour force (unemployed or in -- subemployment conditions) by means of economical growth- plans. The situation was worsened by the blockade of the island.

Facing the situation of an almost even distribution ---- throughout the nation of the unemployed masses and the - lack of data for short-term planning, it seemed logical- to undertake industry-construction plan that, without -- an atomization of the effect, would solve the most ----- urgent problems.

At this stage, there was no organism in the country to - fulfill this task on the territorial planning aspects. - The National Planning Board had been abolished (concen-- trating basically on the promotion of tourist zones) —

and a Physical Planning department was created in the - Ministry of Construction to fulfill these tasks.

At the beginning, the National Physical Planning ----- Institute concentrated mainly on the elaboration of --- urban projects and the location of small constructions.

It was soon to widen its study field, firstly on a ---- regional level, and afterwards on a national level, --- because of imperious needs of framing the local ------- projects within a general knowledge of the territory, - searching the ways to determine the specifical ------- functions that should fulfill each zone in the country.

This is how, searching to fill that lacuna, the content of the work was widened; the needs of an inventory and- information were growing rapidly.

Early studies could serve as a background to the ------ following development (basically):

a) Determination of territorial problems -- emerging from the repercussions of the - first economical instructions.

b) National Inventory

Having these data, the first attempt of a Industrial -- Plan was made; it selected 16 cities, answering the --- following.

- Decentralization of the city of la Habana, focal point of past industrial location.

- Total use of the labour force of those --- cities giving it the basic requirements -- for settlement.

- To achieve a more even labour force ------ distribution throughout the territory.

The first Industrial Plan was mainly addressed to the -- iron and metallurgical industry, the electrification, -- the cement Industry, the Fertilizer's Chemistry and the- Textil Production. The first constructions of this plan- began in 1960, and actually many of the industries then- planned are producing.

As time passed by the plan has suffered modifications, - because of a deeper research of national needs, with a - fair investigation of the natural resources and ------- according to clearer lines of development.

The initial plan in its development also meant readjust- ments concerning the geographical locations, since the - research and the physical planning added clearer and --- more exact elements. All the works related with our ---- economical development plants, resulted in the physical- plans elaborated for industrial zones, which can be ---- found today in a level of realizations.

As an answer to the investments on one hand, and the --- physical needs on the other, urban studies were made of- the 25 main settlements of the island.

PINAR DEL RIO:	Pinar del Rio, and Mariel
HABANA:	La Habana and Güines
MATANZAS:	Matanzas, Cárdenas and Colón
LAS VILLAS:	Santa Clara, Cienfuegos, Sagua la Grande, Caibarién, -- Trinidad and Sancti Spiritus
CAMAGUEY:	Camagüey, Nuevitas, Ciego de Avila and Morón.
ORIENTE:	Santiago de Cuba, Bayamo, -- Guantánamo, Manzanillo, Holguín, Mayarí, Victoria de -- las Tunas and Gibara.

At this stage were determined because of their characteristics three industrial production zones: Oriente, - Central and Western Zones, with a higher degree of ---- precision.

Oriente:

The given characteristics of this zone, regarding ----- mineral resources, with plenty of iron, and the ------ existing nickel and cobalt industries, in Moa an Nicaro among other factors, guided our locational studies of - ironworks in this zone. These studies began since the - first stages of development, and at the present, are -- deepened and concreted in the Oriente Norte (Northern - Oriente) zone.

The structural and economical changes that will be ---- obtained with this location are considerable, since it- will establish a balance element in the territorial --- infrastructure of the nation; by an equilibrium of the-

weight of the western zone, that has, including the metropolitan Havana deformed actually these relations.

As we said before, the region has two points of ------ industrial concentration: Nicaro and Moa.

In the Nicaro zone, where the mines converge towards -- wide plains that surround the Nipe bay, the biggest in- Cuba, connected directly with the national communica--- tions system, are the best conditions to make possible- a great industrial development.

This zone also has the Puerto de Falton, with all its - installations to load and unload minerals; these can be used in the first development stage of the plan.

Across this zone also flows one of the biggest rivers - in the Oriente province: the Mayarí river; this river - equipped with a convenient dam system, the first one in its mounth, has enough capacity to store the amount of- water required by industry, population and irrigation.

A plant, very modern and with great mineral resources - on the site, is located in the Moa zone; unfortunately, due to its physiographical characteristics, vast ------ territorial areas are scarce and the access to the zone is difficult.

Actually works are concentrated in the environs of the- Bahía de Nipe, initiating the project of a mettalurgi-- cal and ironworks complex, connecting the Moa and Nicaro plants, its additions and the new ironworks.

THE CENTRAL ZONE

The Central zone has a link with the Oriente zone, from the industrial structure viewpoint: this link is Nuevitas, in the Camagüey province. Nuevitas is a very ----- important harbour within the nation, since it is the -- only suitable one between Matanzas and Felton harbours. Presently it is connected with the sugar-cane producing areas, by reads and railroad tracks. Towards Nuevitas - converge the main part of the sugar cane production --- destined to export.

Since 1959, Nuevitas was defined as a focal point for - the absorbtion of industrial investments because of its characteristcs. Its main investments are: the thermo--- electric plant, the cement plant, a chemical fertilizer combinate, etc. Because of the investments, its ------- influence on the zone became so big, as to change ---- radically the zone's structure. This problem has been - solved in the study of the Master Plan under prepara--- tion.

Towards the Central zone of the island, in the Las Vi-- llas province, are two industrial concentration points- Santa Clara in the center of the province and Cienfue-- gos on the Southern coast. Santa Clara is very impor--- tant from the rairoad point of view; this gives it ---- possibilities of national connection. This zone was --- selected to developp the mechanical industry to produce machinery pieces and industrial installations. Besides- the port of Cienfuegos is seen as a development within- the national system of harbours.

Between both nuclei an industrial interrelation is --- forseen. Santa Clara related with light industry ----- (mechanical and domestic appliances industry) and Cienfuegos with the raw material because of its harbour.

Besides, in Cienfuegos was localized another chemical-combinate for the production of fertilizers and an --- important petrol refinery, besides, the warehouses for the exportation of sugar in bulk, are already in ----- construction.

This situation is responsable for the fact that, for - some years, both nuclei developed in a similar manner.

THE WESTERN ZONE

The western zone is limited between the harbours El -- Mariel and Matanzas, having as a central element the - Metropolitan Havana, that represents one of the most - significative town planning problems.

Metropolitan Havana is one of the examples of hypertrophy of the capital of an underdeveloped country. The - 25% of the population of the nation live in it, in a - area that is 0.4% of the national area. Its population is bigger than the existent in the 25 most important - cities of the nation.

In 1964, the 52.8% of the value of the industrial ---- production (including the sugar industry) was produced in Havana. The transport of goods and raw materials, - the railroad junctions and the portuary activities, -- were such that everyone could notice it. Maritime ----

transport, in the same year, was the 90% ot he total - portuary activities.

This problem requieres the following measures against the congestion and to stop the out of proportion ---- growth of the city:

- Eliminate from Havana all the industries that, because of their operation, ----- technical problems, etc. should be ----- located in other settlements.
- Avoid the location of new industrial --- investments within the city, excepting - those depending on technoclogical ------ relations with the industries already -- within the city, excepting those ------ depending on techonoclogical relations - with the industries already placed in -- the City.

In general lines, this is the situation of the capital with an aspect of its town planning problems.

(A detailed analysis of the industrial development in Cuba, up to 1966, was presented by the Cuban delega--- tion at the Latin American Symposium in Santiago de -- Chile, sponsored by the Economical Commission for La-- tin America and the Industrial Development Centre of - the United Nations)

At the present time, the general line of industrial -- location can be found in the words of the Prime Minis-

ter in his speech of March 13, 1968:

"We can produce steel, chromium, nickel, mainly ----- extract nickel and with its by-product, iron, develop- the steel production. These cannot be investments of-- the present, because now we have to invest, not in -- great investments that take years to produce, but in - those that can become rapidly a part of the production of goods (small dams, big dams or whatever they are) - in the value production, in the food production. The - effort is made now in everything that may contribute - to strengthen the situation in a inmediate way, or in- other things as fertilizers and cement, that incide -- inmediately on the development.

Already the work on iron will have to be much bigger,- and we must do it between 1970 and 1975, Up to 1970 to concentrate the maximun effort on the agricultural --- development, and in all lines on which we have been -- working. To continue with the development of the ----- fishing industry. The development of transportation, - the construction industry, this year will be a year in every order of great impulse to the hydraulics, to --- road construction, generally speaking, to the act of - setting in production new lands"...later on, he continues...."This means, that we will have traced our way- up to 1970, and from 1970 on there will be the nedd to enhance the industrial investments of this type.

Nevertheless, agriculture will force us, the milk in-- dustry will force us to build many plants of dry milk, many plants to produce cheese; the agricultural ------

development by itself, the production of citrics will-force us to establish pertinent industries, the develop ment of the coffee production". This is an extract of-what will occur in the field of industrial location -- and regional development.

TERRITORIAL ORGANIZATION

Parallel to the concepts previously talked about, it -- seems interesting to define, even if in a brief way, - the basic experience on territorial organization, ---- which, actually, represents the physical background of all our works.

As a result of the first Agrarian Reform Law (1959), - were formed different systems of land administration - (land that has passed to the State without any base of territorial organization) which created a disorderly - pattern with infinite interpenetrations, and a total - dispersion that made extremely difficult the labour -- organization and control. This stood as a fact with -- the last census of the government's lands begun in --- 1962.

On the other hand, given the needs of the revolution - and those of the state-owned enterprises, based on the nationalized production means, each of these organisms or enterprises had to face the necessity to organize - themselves territorially to accomplish their tasks, -- may them be production or service tasks.

The division in provinces and municipalities inherited by the Revolution did not fulfill the economical or -- any other kind of criteria that could serve as back--- ground to establish that organization. This resulted - in the forming of different divisions inside the ----- provinces, divisions that difficulted in a large way - the relations and work coordinations that were ------- reflected finally in the production and in the ------ deficiencies in giving services to the production.

When we superpose these problems on the same territory the need to organize all the production and service -- organisms on a territorial background that could ---- coincide at the same level with the political and ---- administrative directives of the country became evi--- dent.

With this background, studying the function of each -- organism and their territorial needs under the ------ existen economical background the first pattern for a- new regional division was fulfilled, creating a new -- territorial level in our country: the Region.

During the stages of analysis of the Regionalization - Project, the following principles were taken into ---- account, principles we can illustrate with these three great groups:

a) <u>Geography and Population</u>: About the natural condi-- tions and the adequate amount of population.

b) <u>Economy and Planning</u>: Comprising the economical and planning activities to develop presently, and in --

the future at this level

c) Social and political character: Covers the institutional, traditional, as well as national customs -- problems, and the revolutionary policy as a whole.

Even if it may seem obvious, not only the first principles corresponding to a general methodology, but also characteristical factors of certain localities were -- taken into account in the Region pattern.

At the same time as the Region was determined, it was compulsory to define an urban nucleus to be constituted as a Regional centre or Directional Economical --- Centre.

On this subject we found out:

a) The inherited physical structure presented an ----- adequate solution in the majority of the cases, but in others, great care had to be taken in order not to make mistakes. On certain occasions there existed a grouping of great settlements; in this case, it wasn't convenient to break the regions surreounding these nucleus, but to determine which one of them had better present conditions and greater ---- future potential to assume the function of Region center, leaving the other nucleus as secondary ---- centers of the Region.

b) The contrary case was presented in Regions with a low population density, with scarce urban nucleus. Here the decisión was to define the development of a practically new city, the structure of a road ---

network and other related constructions.

As methodological indexes of our experience, let us determine the following characteristics, respecting regional typology:

Considering that the directional activities are developed over a determined territory, the area of the region should be found within certain limits that allowed the development of the functions of the organisms that were to operate in them. The area fluctuates between 1500 and 3500 km^2., even if the maximum would be always as a function of topography, the communication facilities, the populational density and specially the region's productive potential.

- The territory should be evenly distributed around its Directional Center, in order to keep minimum distances from it.- These distances should not exceed 40 km., excepting those cases on which the most far away places are scarcely productive zones, scarcely populated zones, or these zones for which an inmediate growth cannot be foreseen.
- The Directional Center should be placed in settlements that have maintained historical relationships with its territory or whose characteristics allowed them to fulfill completely their work.
- Among others, the following elements were taken in consideration for its solution:

a) Minimum population of 25000 inhabitants
b) Economical possibility and convenience for a future development uf this nucleus.
c) Water supply possibility to guarantee the development
d) Possibility and convenience of an industrial development
e) Possibility of being a real centre for public services.

The cases that in that moment did not fulfill all the elements just mentioned, were analyzed as functions of the economical regional development and of the settlements, but they always had to fulfill the requirements (b) and (e).

Une of the main premises a region should have, is enough population (present or potential) to justify the location of service facilities on a regional level with the economical efficiency each case requires. The proposed parameters stood between 80 000 and 250 000 inhabitants. Even if the populational aspect is a function of the area and the distances, this is in terms of density, the efficiency of the services is directly related with the amount of population, that is, the higher the population, the higher the efficiency.

According to this, there could be a widening of the maximum limit, specially in those cases in which the directional centres were big cities or in those cases in which the populational density within the field of-

attraction is a high one.

Another basical principle was that of the analysis made from a production standpoint, in which were taken into-account:

- Organization and direction of the Agriculture and Cattle production
- Organization and direction of the Sugar - Cane production
- Organization and direction of the Agricultural-Industrial processes
- Organization and direction of the cons--- truction activities.

There were also considered all the incidences produced-by the administration and by the Political Direction of the nation.

All this would add finally to:

a) Establishment in the Region of the horizontal coor-- dination level between all the organisms
b) To create the political and economical conditions -- assuring the basic participation in the elaboration- and discussion of the plans.

The work just exposed was not a simple task, several -- years were dedicated to this study and, even if we have today a Regionalization proposa, this doesn't necessa-- rily means that the work is over, it is really just a - stage, this stage, in the development dialectics, with-

greater deepenings in fuction of experience and investigation, will be concreted up to a complete adequation between the development's reality and its consequent physical structure.

At the end of this paper, incomplete in form and contents because of its size, we shall describe the methodology prepared for the specifications of the National Perspective Development Plan; this plan, taking the year 1968 as a general base and 1970 for some of its elements, is going to start a new stage in the Territorial Planning in Cuba, according to the economic development of our country, that has already generally guaranteed its main principles.

NATIONAL PLAN. A METHOD

Presently, with a more solid conception and a more scientifical base, we are realizing the studies for a Project of the National Territorial Development Plan, in a 10 to 15 years term.

In general lines the scopes of such a plan should be the following:

a) Zoning of cultures with estimates of the production volumenes in zones and location of industry and primary installations

b) Industrial microlocation. Determination of the industrial development zones

c) Settlement network. Determination of the growth and development of industrial cities
d) Road network, energetics, warehousing, etc. Portuary development scheme
e) Main service networks up to the municipal leve.

Municipal and provincial instructions should be used as a base for land use, its distribution, and desired amount of production too. Instructions for industrial sectors, transport, construction, etc. should be equaly taken into account.

The work should be carried out in the following stages:

I.- INVENTORY AND BALANCE

1) Balance of natural rescurces and possibilities of exploitation: Hydrology, Mineral resources, etc.
2) Area balances: National, provincial and regional areas, emphasizing the Agricultural areas according to their productivity level and adaptability to the different cultures. Non-agricultural areas: marshes, lagoons, towns, highways, roads, installations, etc.

   State and private areas:

3) Hydraulical balance: Inventory of the hydraulical installations. Dams, subterranean basins, and potential irrigation areas
4) Present permanent areas of cultures and private and governmental settled areas.

II.- INSTRUCTIONS

1) Instructions and plans according to regions
2) Areas and localization
3) National instructions for the different types of Agricultural and Cattle production.

III.- INSTRUCTIONS FOR THE INDUSTRIAL DEVELOPMENT BY -- BRANCHES, SECTORS, CONSTRUCTION AND TRANSPORTA--- TION.

- Programs of cultures

a) Sugar cane Plan.

- Existing areas, perspective areas and demolitions
- Sugar cane industry influence areas
- Areas apt for sugar cane cultivation
- Areas destined to irrigation
- Agricultural capacity of each sugar cane --- plant
- Permanence or growing of each sugar cane --- plant according to its technological ------ indexes
- Agricultural and Industrial variants for the sugar cane crop after 1970 ten million tons.
- Definition of the best sugar cane transpor-- tation in each type of sugar cane plant

b) Fruit and coffee growing plans

- Present and future fruit-tree areas classi-- fied in: Citrics, pineaple, banana, and ---- other fruit-trees

- Industrial location, agricultural and industrial transportation
- Determination of the necessary labour force
- Adequate installations of the fruit and coffee growing areas
- Warehouses, dormitories, etc.
- Repercussions of the development of new agricultural areas on transportation and energetical network

c) Development of vegetable growing plan

- Present and future vegetable areas
- Efficiency and production under the following classification: potatoes, and other vegetables
- Needed labour force
- Installations for the vegetable areas
- Repercussions in transportation and in the energetical network

d) Rice growing plan

- Present and future areas
- Efficiency and production
- Needed labour force
- Service and industrial installations
- Transport and energetical network

e) Cattle breeding plan

- Present and future cattle zones
- Cattle miling, fattening and development Craising and replacing

- Present and future balance of the total, in-zones and provinces
- Milk and meet production according to the -- zones
- Main consequences of the cattle breeding --- plan
    - Installations
    - Road network
    - Energetical network
    - Derivate industries
- Cattle, sheep, pigs, horses hens and chic--- kens.

IV.- ANALYSIS AND SYNTHESIS

1) Starting from the following characteristics:

- Availability and quality of the soils
- Location of potential irrigation areas
- Results of the study of culture program
- National and provincial cultivation zoning - instructions.

The agricultural and cattle production zoning plans -- and area balances for each kind of production are to - be elaborated. The following must be also determined:- Service to production installations, landing lanes for fumigation purposes, workshops, etc.

2) Present balance according to regions of the -- labour force and population

3) Labour force needs: industry; agriculture and- services; regions, calculating the induced --- population and regional balance.

4) Characteristics of the main urban centres --- chosen as industrial development nuclei.

- Present condition of the buildings
- Present conditions and possibilities ------ respecting transportation
- Present conditions and possibilities regarding water supply
- Possible urban or industrial expansion ---- areas

Considering the following questions:

- Present equipment of the urban nuclei ----- regarding public services
- Present role of the city
- Lobour force potential
- Geographical location characteristics

5) Industrial development directives en branches determining the size and type of the industry (industrial location project taking into ---- account the cities. Industrial development -- zones)

6) Settlement Network project regarding the ---- agricultural, industrial and service development.

7) Industrial cities and services size calculus

8) Transportation

- National interregional cargo movements ---- calculus
- National and interregional passenger ----- movement hypothesis

- Portuary cargo movement calculus. National -- portuary network scheme

9) Electricity

- Regional demand calculus
- National and regional network scheme

10) Regional construction demand calculus in amount and assortment. Construction industry ------- installations

Parallel to the project the following investiga tion tasks are fulfilled

- Labour force indexes for the different ----- cultivations with different levels of mecha-- nization
- Best transportation techonologies for ------ different cultures. Typical read projects for different cultures
- Necessary labour force calculus to serve the- population within the different territorial - levels
- Urban typology. Roles and sizes of the ----- settlements according to their productive and services functions, determination of the ---- influence areas
- Technology and technological indexes of the - different cultivations until reaching the in- dustrial stage; technology and technological- indexes of the services given to production - directly connected with agriculture.

- Typical designfor each field depending on the culture

- National industrial raw material possibilities and their use technology
- Determination of the zones with high ----- energetical possibilities for greater in--- dustrial zones.

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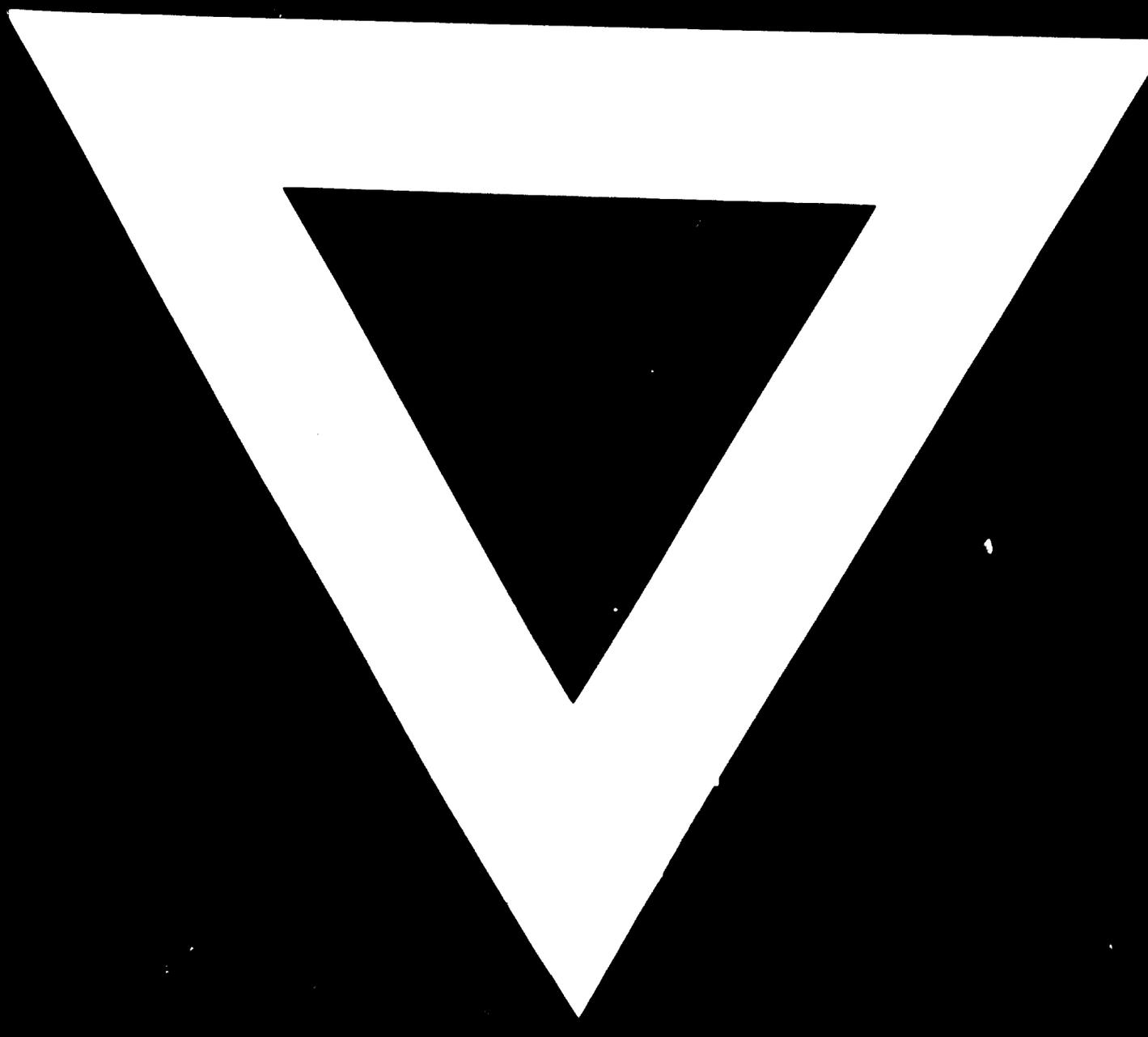

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