ISAHP 2007, Viña Del Mar, Chile, Agosto- 8-3, 2007

APPLYING AHP TO TERRITORIAL PLANNING IN VALPARAISO, CHILE

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Keywords: V Region - Territorial Development Plan, Urban Structure, AHP Application

Summary: *This paper's aim is to show how the Urban-Territorial Development Plan, developed in terms of 3 main dimensions related with the analysis: urban-territorial, environmental and economical-productive, can be integrated and can enlighten the decision making process for the region's urban structure models.*

The goal of this work is to show the planning process at a regional scale, where Chile's V Region is analyzed in the central macro-zone development environment. AHP is used as a statistical and cartographic tool to systemize the diagnosis information in supporting the decision making tasks of the involved public sectors. In this context, several territorial models are developed in terms of urban-territorial, environmental and economical-productive criteria, to meet the objectives defined for the general plan.

Qualitative and quantitative criteria are identified, that respond to the diagnosis base line and that correctly explain the regional dynamics, allowing the complete integration of the territorial models. Additionally the main relevant actors are involved, building a bridge so that the interests of the different sectors may meet in terms of the goal and scope of the Urban-Territorial Development Plan.

PLANNING PROCESS

In period of the Presidency of S.E. Mr. Ricardo Lagos Escobar, the Ministry of Housing and Urbanism, decided to implement regional planning scale in all country.

This planning is of indicative character, allowing to contribute thematic and emphases of interest of cross-sectional way to all the public sector, giving obligatory to the actions that must implement the Ministry of Housing and Urbanism, in the matters that are of their competition, such as the instruments of territorial planning of intercommunal and communal scale, like thus also some emphases respect to the implementation of the prevailing habitacional policy in the country.

The process of regional planning in the Region of Valparaiso began under that perspective, allowing the incorporation of work methodologies that facilitated the multisector analysis, as it is the environmental strategic evaluation, the citizen participation by means of the technical application of manifold of work in the diverse instances of call of the involved actors and the multi-criteria analysis as a tool of integration of qualitative and quantitative components presents in this kind of decision making process.

From the perspective of the involved actors, counted itself with the participation of the technical team of the following public services: Ministerial Regional Secretariat Public Builder, Ministerial Regional Secretariat of Planning and Cooperation, Ministerial Regional Secretariat of Economy, Ministerial Regional Secretariat of Agriculture, Ministerial Regional Secretariat of Transport and Telecommunications, National Commission of Environment, Service of Geology and Mining, Agricultural and Cattle Service, Forest National Corporation,

Corporation of Promotion, National Service of Fishing, National Service of Tourism, National Monument Council.

The work instances that were used for the formulation of this instrument of planning, were of regional and provincial scale, according to the following conformation:

1. In the regional scale, involve to the representatives services public that present on environmental competitions, according to the indicated thing became jumbled preceding. These representatives conformed the Technical Committee of the Plan who had the responsibility of the revision of each one of the studies involved in this plan and to contribute with information of their sector in the measurement that thus was necessary and that it was to disposition for the design of this plan.

2. In the provincial scale, involve of the public sector with the private actors with the competitions in the scope of the territory. In this region one worked with the following provinces: San Antonio who involves 6 communes, Valparaiso who involve 8 continental communes and one insular one, Quillota who involve 7 communes, San Felipe who involve 6 communes, Los Andes who involves 4 communes, Petorca that involves 5 communes and finally Easter Island that involves 1 commune. In each one of these territories one worked with the participation in all the stages of formulation of the planning instrument.

This process allowed that a design one Plan with participation levels was generated an instrument with greater level of detail and approach to the existing territorial differentiations in the Region, which allowed to generate two models constituent of the Plan: one environmental dimension, which involves the variables of the territory such as: hydrography, biodiversity, quality of the water, natural and human risk and dangers, among others and a urban-territorial dimension that considers variables of infrastructure, connectivity and accessibility, demographics variables and of population dynamics.

ENVIRONMENTAL DIMENSION

The empirical model of this dimension, corresponds, to the environmental criteria, those that as a whole construct the Environmental Model. This model is constructed from the definition of the following strategic objective: "To impel the sustainable development of the Region of Valparaiso, through the territorial ordering, valuing, conserving and preserving the environmental patrimony with the purpose of orienting its possible uses suitably, contributing to the improvement of the quality of life of the population and preventing the existence of a environment free of contamination".

From the creation of this empirical model on the base of a GIS, in which one worked considering, as diagnosis, the preferential vocations of the territory in this environmental dimension of the plan. Input or data set of entrance was had like, the layers associated to the environmental component that includes global criteria such as:
- To orient the planning of the territorial intervention so that it assumes the natural features and potential of the territory, with the intention of contributing to recover and improving the environmental quality.
- To promote the conservation of the environmental patrimony, through the responsible management on the natural and cultural resources by means of its sustainable use.
- To promote the protection of the biodiversity and to prevent the environmental damage, stimulating the compatible adoption of policies and practices with the environmental Sustainability, in the developed productive processes in the human activities.
- To obtain the territorial environmental ordering of the Region, orienting the management towards an efficient distribution of the compatible economic activities with the environment.

These are given off in sub criteria or terminal criteria corresponding to terrestrial site, aquatic site, biological corridor, land with agricultural aptitude, cultural patrimony and tourism, removal in mass, flood, earthquake, danger by fire forest, danger by contaminated areas, running of dangerous substances, dangerous industries, natural desert, susceptibility of lost of land, vulnerability of the water-bearing, vulnerability of the water-bearing by human effect, desert human and deforestation.

Each Terminal criterion has a nominal division (given names at intervals or range corresponding to qualifications of the considered variable), and in others was created from the information of diagnosis of bases line regional. To each one of them in addition it was constructed to them, from the processing of methods multicriterion, a scale of measurement by means of the calculation of the weight of each range determined by scale of valuation by criterion. These weights enable to measure the intensity associated to each one of the range or defined intervals.

All the analyzed region, has been subdivided by means of one pixels homogenous, defined by the difference of the set of criteria indicated with some of the adjacent cells, in already mentioned basic territorial cells and contain information on each one of the defined terminal environmental criteria. The set of the tree of criteria plus the alternatives, that in this case are basic the territorial units, conforms the Environmental Model.

Next to the weights and their graphical representation are indicated 1er. and 2do. level of the environmental model. These correspond to the weights that orient the decision of processes and ordering of the territory under the environmental optics.

It is possible to indicate, that these weights and their consistencies, correspond to the one of the model combined (integrated) of the present actors during the process (Table Actors of the evaluation process). For greater abundance, it is possible to give the weights by each actor (Institution) involved in the prioritization process

Weights and scales of terminal criteria according to levels or ranks of the environmental model inland region

Environmental Model Inland Zone	weight	Type of	Level 1			level 2			level 3		
Criterios Terminales	**criteria**	**scale**	**scale**	**scale_ahp layers shp**	**weight**	**scale**	**scale_ahp layer shp**	**weight**	**scale**	**scale_ahp layer shp**	**Weight Level**
TERRESTRIAL SITE	0.092	Ordinal	Priority 1	Priority 1 (Sites Priority 1)	1	Priority 2	Priority 2 (Sities Priority 2)	0.5			
ACUATIC SITE	0.033	Ordinal	Priority 1	Prioridad 1 (Sites Prioridad 1)	1	Priority 2	Priority 2 (Sities Priority 2)	0.5			
RUNNING BIOLOGIC	0.096	Nominal	Present	Presencia	1	Absence	Absence	0			
LAND WITH APTITUDE AGRICOLA	0.142	Ordinal	High	High (Class I - II - III)		Middle	Middle (Class IV - V)		Low	Low (Class VI - VIII)	
CULTURAL PATRIMONY AND TOURISM	0.059	Nominal	Present	Present	1	Absence	Absence	0			
REMOVAL IN MASS	0.041	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
FLOOD	0.049	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
EARTHQUAKE	0.025	Ordinal	High	There is not informaiton		Middle	There is not informaiton		Low	There is not informaiton	
DANGER BY FIRE FOREST	0.050	Ordinal	High	High risk of fire forest		Middle	Middle risk of fire forest		Low	Low risk of fire forest	
DANGER BY CONTAMINATED AREAS	0.071	Nominal	Present	Present	1	Absence	Absence	0			
RUNNING OF DANGEROUS SUBSTANCES	0.059	Nominal	Present	Present	1	Absence	Absence	0			
DANGEROUS INDUSTRIES	0.075	Nominal	Present	Present	1	Absence	Absence	0			
NATURAL DESERT	0.021	Ordinal	Serious	Serious		Moderada	Moderada		Slight	Slight	
SUSCEPTIBILITY OF LOST OF LAND	0.019	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
VULNERABILITY OF THE WATER-BEARING	0.016	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
VULNERABILITY OF THE WATER-BEARING BY HUMAN EFFECT	0.065	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
DESERT HUMAN	0.040	Ordinal	Serious	Serious		Moderate	Moderate		Slight	Slight	
DEFORESTATION	0.040	Nominal	Present	Present	1	Absence	Absence	0			

Fount: Own elaboration from the results of experts environmental dimension study

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Weights and scales of terminal criteria according to levels or ranks of the environmental model coast region

Environmental Model Coast Zone	weight	Type of	Level 1			level 2			level 3		
Criterios Terminales	**criteria**	**scale**	**escale**	**scale_ahp layers shp**	**weight**	**scale**	**scale_ahp layer shp**	**weight**	**scale**	**scale_ahp layer shp**	**Weight Level**
TERRESTRIAL SITE	0.033	Ordinal	Priority 1	Priority 1 (Sites Priority 1)	1	Priority 2	Priority 2 (Sities Priority 2)	0.5			
ACUATIC SITE	0.092	Ordinal	Priority 1	Priority 1 (Sites Priority 1)	1	Priority 2	Priority 2 (Sities Priority 2)	0.5			
RUNNING BIOLOGIC	0.096	Nominal	Present	Present	1	Absence	Absence	0			
LAND WITH APTITUDE AGRICOLA	0.063	Ordinal	High	High (Class I - II - III)	1	Middle	Middle (Class IV - V)	0.4055	Low	Low (Class VI - VIII)	0.1644
CULTURAL PATRIMONY AND TOURISM	0.138	Nominal	Present	Present	1	Absence	Absence	0			
REMOVAL IN MASS	0.023	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
FLOOD	0.017	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
EARTHQUAKE	0.048	Nominal	High	There is not informaiton	1	Middle	There is not informaiton	0	Low	There is not informaiton	
DANGER BY FIRE FOREST	0.027	Ordinal	High	High risk of fire forest		Middle	Middle risk of fire forest		Low	Low risk of fire forest	
DANGER BY CONTAMINATED AREAS	0.070	Ordinal	Present	Present		Absence	Absence				
RUNNING OF DANGEROUS SUBSTANCES	0.056	Nominal	Present	Present	1	Absence	Absence	0			
DANGEROUS INDUSTRIES	0.054	Nominal	Present	Present	1	Absence	Absence	0			
NATURAL DESERT	0.075	Nominal	Serious	Serious	1	Moderada	Moderada	0	Slight	Slight	
SUSCEPTIBILITY OF LOST OF LAND	0.019	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
VULNERABILITY OF THE WATER-BEARING	0.017	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
VULNERABILITY OF THE WATER-BEARING BY HUMAN EFFECT	0.020	Ordinal	High	High Susceptibility		Middle	Middle Susceptibility		Low	Low Susceptibility	
DESERT HUMAN	0.065	Ordinal	Serious	Serious		Moderate	Moderate		Slight	Slight	
DEFORESTATION	0.044	Ordinal	Present	Present		Absence	Absence				
TERRESTRIAL SITE	0.040	Nominal	Priority 1	Priority 1 (Sites Priority 1)	1	Priority 2	Priority 2 (Sities Priority 2)	0	Low	Low (Class VI - VIII)	

Fount: Own elaboration from the results of factories of experts environmental dimension

TERRITORIAL URBAN DIMENSION

The formulation of the Territorial Model, was made of way equivalent to the previous one, from the design of a hierarchic tree of objectives and strategic criteria, until the level of terminal criteria. By the greater complexity and amplitude of variables it jeopardize in the territorial dimension with strategic nature and central for the construction of models, is that it is disturbed in a greater number of criteria with respect to the previous ones, reaching in this case the study of the inclusion of 38 variables. It altogether with the definition of ranges of acceptability, corresponding to limits between the range of valuation of the resulting thematic cover of the model, those that will allow to differentiate the zones in the regional territory, according to its final graphical simbolización.

The strategic objectives of territorial the urban dimension is: "To optimize the use and relations of the regional space", that is from a process of discussion and validation in a meeting of planning conducted with actors involved in the planning process. From this objective 4 strategic criteria consider, that they would contribute to the fulfilment of the strategic objectives of the dimension, of which are given off feasible terminal criteria as well to represent symbolically in the regional territory. It according to the logical thematic sequence of inclusion of main the strategic objectives. The detail of the criteria in each one of the indicated levels of hierarchy altogether with the resulting global weights for the terminal criteria of the model is indicated in the following picture:

Tree of strategic Criteria, of first and second order, territorial dimension

STRATEGIC CRITERIA	CRITERIA 1ER ORDER	CRITERIA 2° ORDER ó CRITERIA TERMINALS	Global Weight Terminal Criteria	
			COAST	**INLAND REGION**
TO STRUCTURE THE REGIONAL URBAN SYSTEM FOR ITS INTEGRATION	FUNCTIONAL ROLLS	Port	G: 0,026	G: 0,004
		Urban service	G: 0,041	G: 0,023
		Agriculture	G: 0,003	G: 0,035
		Turism	G: 0,037	G: 0,017
		Industry	G: 0,015	G: 0,018
		Agricultura Services	G: 0,004	G: 0,040
		House	G: 0,025	G: 0,013
	JHIERARCHY	Growth Population	G: 0,017	G: 0,017
		Growth Dinamic	G: 0,028	G: 0,028
		Complexity Degree	G: 0,021	G: 0,021
		Area funcional influence	G: 0,002	G: 0,002
	INTENSITY OF USE	Degree of Urbanization	G: 0,007	G: 0,007
		Disperse	G: 0,007	G: 0,007
		Concentrated	G: 0,018	G: 0,018
		Population Density	G: 0,028	G: 0,028
	URBAN CENTER	Morphology Urban Center	G: 0,042	G: 0,042
	MIGRATION	Intrarregional Migration	G: 0,006	G: 0,006
		Interregional Migration	G: 0,004	G: 0,004
	MOVILITY	Interregional Movility	G: 0,007	G: 0,007
		Intrarregional Nivility	G: 0,011	G: 0,011
TO DISTRIBUTE THE SYSTEMS OF EQUIPMENT EQUITABLY		Scale of the Equipment	G: 0,027	G: 0,027
		Functional Centrality	G: 0,038	G: 0,038
		Funcional Relations	G: 0,082	G: 0,082
TO IMPROVE INTERRELATION BETWEEN THE COMPONENTS OF THE TERRITORIAL SYSTEM	Relations Regional Urban	Conectivity of the UTB	G: 0,015	G: 0,015
		Accesibility of the UTB	G: 0,036	G: 0,036
	Interregionales Relations	Conectivity 2 of the UTB	G: 0,030	G: 0,030
		Accesibility 2 of the UTB	G: 0,104	G: 0,104
	Internationals Relatios	Conectivity 3 of the UTB	G: 0,042	G: 0,042

		Accesibility 3 of the UTB	G: 0,059	G: 0,059

STRATEGIC CRITERIA	CRITERIA 1ER ORDER	CRITERIA 2° ORDER ó TERMINALCRITERIA	Global Weight Terminal Criteria	
			COAST	**INTERIOR**
TO FORTIFY INFRASTRUCTURE NETWORK	Infrastructure of Transport	Requerimiento de Accesibilidad	G: 0,038	G: 0,038
		Requerimiento de Conectividad	G: 0,013	G: 0,013
	Infrastructure Sanitary	Requerimiento de dotación	G: 0,018	G: 0,018
		Requerimiento de disposición de Rises	G: 0,020	G: 0,020
		Requerimiento de disposición de Riles	G: 0,025	G: 0,025
	Infrastructure Energetic	Requerimientos de redes y ductos de transmisión	G: 0,025	G: 0,025
		Requerimiento de centros de distribución	G: 0,019	G: 0,019
	Infrastructure of Telecomunication	Requerimiento de voz y datos	G: 0,034	G: 0,034
		Requerimiento de imagen digital	G: 0,026	G: 0,026

Fount: Own elaboration of the study.

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ANALYSIS PROCESS

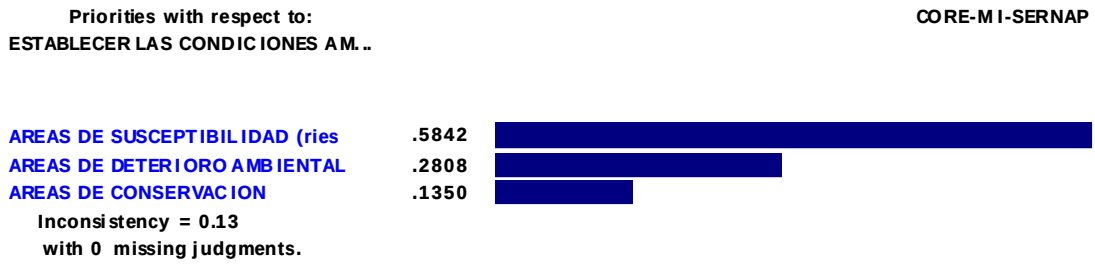
The process that is indicated next used for each model, and therefore reference to the fact will not be made again that was applied to two different models.

Through a systematic mechanism of comparisons to pairs, of branch in branch, by means of processes social-mathematicians of resulting participation of the Team of Planning conducted on each model, the degree of importance of the different criterion-children (terminal) based on the criterion was determined father(estrategic). Thus one obtained the global weights, local and global, of each one of the present nodes or criteria. For the case of the terminal criteria, the global weights, are those that, added and multiplied, will be applied to the values of evaluation of the alternatives. For the obtaining of the global weights of the terminal criteria all the previous criteria and therefore of the complete tree were evaluated. The bases of the method to show an index of consistency that characterizes the process of allocation of importances or weights, particularly important when there are many actors, visions very different or great amount from criteria in the model. The admissibility range that worked were of 0.00 - 0,04.

These comparisons were made, for each group of variables, by means of special vote, that guaranteed the correct integration of all the opinions, as much in the case of regional actors, like of integral expert professionals of the consulting equipment of the Plan. The incorporation of the appreciations and opinions represented in an indicator was made by means of the use of an electronic mechanism (key pads), of which each representative group of actors had an individual commando. It been worth automatic integration to the model the judgments (expert) that emitted the participants.

The use of the support software, allowed to handle in independent form the decisions of the different actors and to measure its particular preferences as well as their consistency, being presented/displayed the results in integrated form, like the global solution reached about the participant equipment. This facility represents a powerful tool for the resolution of conflicts, the integration of the actors and the profit of consensuses. An example of these exits of the program used multicriterion and that shows the differences of opinion of each group of actors indicates next:

Opinion of the weight of strategic criteria environmental dimension work group of the Regional Council, MIDEPLAN, and SERNAPESCA.



Opinion of the weight of strategic criteria environmental dimension work group of SAG and SERNAGEOMIN
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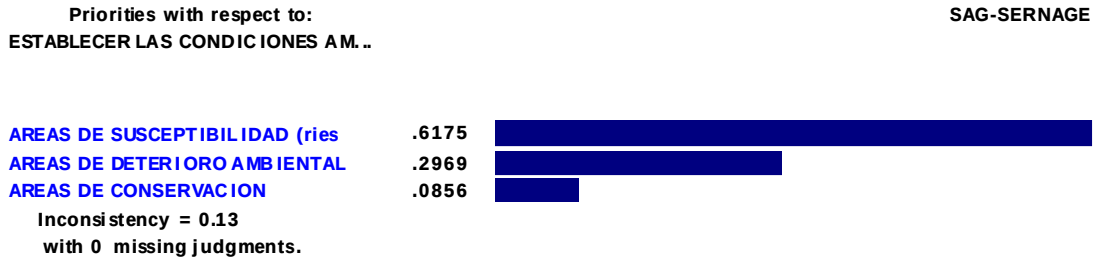
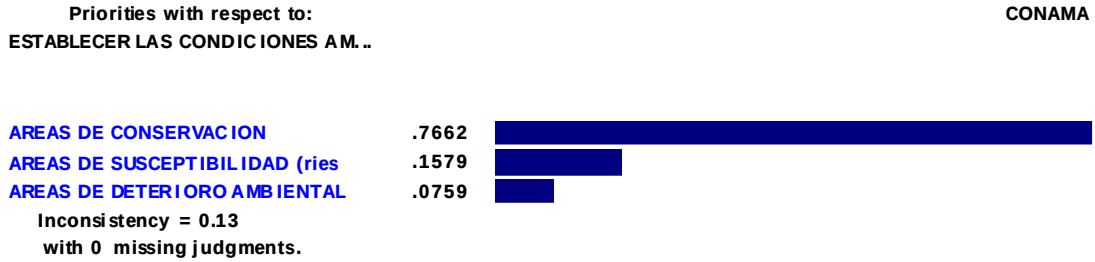


Opinión of the weight of strategic criteria environmental dimension work group of CONAMA.



Later, the construction of the scales of associated measurement to the terminal variables was constructed on the base of consultations to the regional diagnoses, and suitable national Literature to each one of the subjects, and that it comprises of the bibliography consulted for the elaboration of the Plan.

This form of construction been worth from the character eminently technician of the consulted terminal criteria.

Finally, and returning to the global image of the problem to study, the weights of the terminal criteria and the scales associated to each one of them, presented in the construction of each model, allowed to integrate in the GIS the values and correct interpretations (mathematically) of the different graphical layers.

SYNTHESIS PROCESS

One obtains in this process the thresholds of acceptability for the simbology of the resulting cartography of each dimension, later to the cartographic superposition of each one of the consulted terminal criteria.

It is this stage, most important from the methodologic point of view, is the synthesis of the originating results of each measure model. The range generated for the simbology of the layers properly was studied and interpreted, which demanded the greater knowledge on the analyzed subject to give its correct valuation them. Here one gives thanks to the concepts of metric, the definition of the acceptability thresholds, those that finally were fit given the graphical representation of the results.

These range limits were obtained for the simbology of the final layers for the models environmental and territorial, which is indicated in the following pictures:

Thresholds Environmental Model

Category	Adjustments of categories	Calculated thresholds		Applied range	
		Sub inland region	Sub Coast Region	Sub inland region	Sub Coast Region
UTB Exclusive	Very High conditioners High conditioners	0,6446	0,6564	118- 77 76- 66	116- 77 76- 66
UTB Prioritary	Middle conditioners	0,2954	0,3918	65- 57	65- 57
UTB Preferent	Low conditioners Mínimun conditioners	0,1594	0,2071	56- 47 46- 24	56- 47 46- 24

Source: own elaboration from the processing of calculation multicriterion and territorial analysis of the cartographic results
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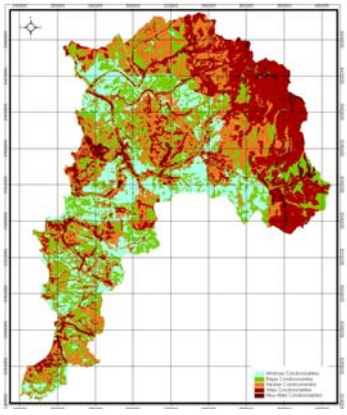
Thresholds Territorial Model

Category	Adjustments of categories	Calculated thresholds		Applied range	
		Sub inland region	Sub Coast Region	Sub inland region	Sub Coast Region
UTB Exclusive	Very High conditioners High conditioners	0.7666	0.8324	154- 202 149- 131	150- 192 149-130
UTB Prioritary	Middle conditioners	0.6487	0.6884	130-110	129- 112
UTB Preferent	Low conditioners Mínimun conditioners	0.326 0.1551	0.357 0.2158	109-89 88- 60	111- 93 92 - 64

Source: own elaboration from the processing of calculation multicriterion and territorial analysis of the cartographic results

As a synthesis the illustrations corresponding to the results of the cartographic modeling of each one of the dimensions of the Plan are reported.

Illustration: Vertical integration cartographic result Environmental Model

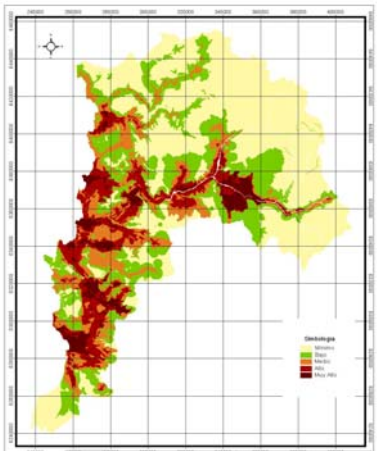


This image represents the integration of the variables of the environmental model, in where the darkest tones they represent the territory that to count on less aptitude for the urban development, until the zones of clearer tones that they give account of the territories with greater aptitude for the urban development within the integration of the variables of the environmental model.

Within the concepts worked in this territorial representation, one is the conservation and preservation of the analyzed environmental components. From that one perspective and since the central element

of this application of analyses multicriterion were the definition of a model of regional development urban, the environmental aspects were considered that benefit or not to this development and therefore, the determination of the territories that by their environmental characteristics do not count on aptitudes for this development. It is possible to emphasize that in this case, this component worked as one of fundamental elements of the design of the plan, in such a way that it manages to transform itself into an environmentally sustainable plan.

Illustration: Vertical integration cartographic result Territorial Model.



In this case, is the integration of the variables corresponding to the urban-territorial model, giving to account that the territories that present greater aptitudes for the urban development, they are indicated with greater intensity and those of smaller aptitude with smaller intensity.

In this synthesis of this model, the aspects of the territory are indicated that indeed count on greater aptitudes for the urban development, considering not only the present static elements in this one but that also those that have a dynamic character whose Change influences of daily or seasonal way based on each component.

On the other hand, this model not only gives to account of a specific condition of the territory according to the antecedents contributed by the studies diagnoses, but that in addition involves variables that count on projection in the time, giving account of the changes that take place in the territory based on certain involved variables. Therefore, it indicates the influence that has these variables in the territory and as these one it can develop aptitudes based on these changes that take place in the time.

INTEGRATION OF THE MODELS

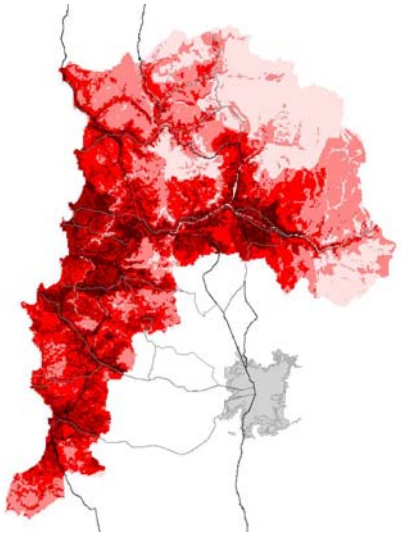
Once obtained the results of models both integrated, the valuation of these took place on the base of the opinions of the technical experts. These valuations allowed to prioritize and to define a model of aptitudes for the urban development from the valuation of the components of biodiversity of the territory that are compatible with the patterns of intensity of use of the land as much for urban activities as for economic activities. From that perspective, predominance is had is given by the Environmental and soon the Territorial one to it Urban model, reason why it implies that the valuation of the environmental component had to orient the regional development, considering the aspects of conservation, preservation and protection of the natural resources and the existing aspects of biodiversity in the territory.

Once carried out this valuation of the components with their consequent priority of the objectives raised for each one of the developed models, these models were integrated, generating a new cartography that of account of the designed territorial model based on the integration of the analyzed variables. It is possible to emphasize that this integration not only allows to count on a of territory image of the model of regional development waited for, if that also it gives account of the best conditions of the territory for the urban development of the region, considering the environmental component like the predominant one within the constructed model.

Consequently, from the integration of both models, territories with greater aptitude to intensify their use, and with it are identified the lifting capacity of the environmental urban subsystems, compatible with the will of the regional actors to conserve the elements of greater value of biodiversity, from the objectives of promotion of a sustainable urban development of their territory-region.

The following image demonstrates this integration and is the result of the participation of the involved technical actors in the process of decision making referring to the regional development, reason why it reflects the behavior of the territory as opposed to a definition of the model of development required for the region.

Illustration: Horizontal integration cartographic result Model of Regional Environmental Urban Development.



In this image are the best aptitudes of the territory for the urban development, considering the priority of the objectives defined in each one of the models. To greater intensity of the zones, better aptitudes present the territory for the urban development, clear making the zones of more tenuous tones in smaller degree for this type of development.

This integration is interpreted like a model from approach to the territory, to define strategic planes of performance on him, in the measurement that orients the process of decision making in planning and territorial ordering, indicating directives to the inferior territorial scales of regulation. It, with the purpose of orienting the process of prospection and planning to actors who have to their position the management of instruments of planning on located scales in the territory, is worth to say the scale intercommunal and communal. The integrating glance that has a territory region from the observed results, allows to a holistic aproximate to the orientations of development and territorial performance, everything what allows to advance in the matter of coordination of interventions and decisions that alter the dynamic ones more located of the urban systems and their scales of space and functional influences, welcoming in them the strategic sense of the connectivities in the region.

It is possible to emphasize that for the case of the Region of Valparaiso, the resulting territorial model not only reflects the present aptitudes in the territory, but that also gives account of the high connectivity that presents with the Metropolitan Region of Santiago, in where the routes concession with a standard stop, allow to diminish the times of trip between these territories, generating a tie relation to the activities productive and of flow of people of daily way like seasonal, favoring of this form that the aptitudes of the territory are tie to conect routes of these territories.

FINAL CONCLUSIONS

The work made as far as the construction of a hierarchic model of priorities, allowed to organize and to systematize each one of the variables that were used in this integration, with a cartographic representation that therefore allowed it, associate to data bases that gave account of the representation of each one of them in the territory. From that point of view, to construct this hierarchy model, allowed to organize information with a clear objective that it was the future integration of the models to construct. This organization of information, allowed to analyze the appropriateness of each one of the variables to use in this construction of models of such way to concentrate the efforts in which really it was necessary for the definition of the final model.

On the other hand, each one of the developed models are explained in a single case, allowing the actors involved in the environmental and urban aspect, might see reflected the behaviour of the variables in the

territory of this component, allowing which they can be reviewed and to analysed based on the own dynamics of each sector, variables and therefore of the model.

The application of the multicriteria analysis, allows to work with the opinions of the experts in each one of the areas of work, specified its own objectives and understanding that within a greater analysis of regional scale, are possible that some of the aspects that are being considered like excellent, happen consequently to a plane different from the results of integration. These in addition allow to organize of suitable way the aspects of relevance within technical level, like of the public speech, giving to account of the real magnitudes of relevance or priority that presents the variables within the elaborated model.

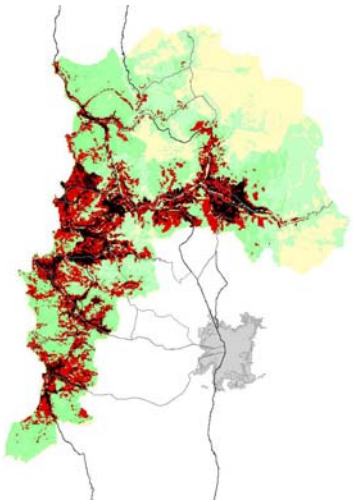
The construction of territorial models with this type of methodologies, allows to incorporate from its origin the dynamics territorial, own of the changes that is experiencing the territory on the base of the interventions that in him take place. From that point of view, it allows to fit and to update in permanent form the worked data, of such way to analyze in direct form the changes that take place within the territory based on the dynamics of this one.

Finally, it matters to emphasize the pertinence of using AHP for the territorial analysis in support to the prospective and planning process, every time it allows to integrate antecedents quantitative and qualitative diagnoses, from the common vision of the own intervening actors of the regional development from the exercise of the public political-tecnic management. For that reason, been worth like an able tool of:

- In the first place to systematize great amount of information as far as the diversity of data, with different levels from processings of quantitative type like qualitative,
- In second place to increase of knowledge of the level dynamic urban territorial and the environmental ones, from the possibility of integrating lines bases, studies diagnoses with the accumulated knowledge of the actors in the exercise of its functions like management public and the necessary construction of a common vision among them that they act and they take part in the regional development from different scales
- and thirdly, to orient the process of public decision making, in the matter of regional urban development, which gives common directives for the sectored performance of political the technical apparatus of the State.

From the definition of the objectives of territorial environmental and urban development of the region, territories are identified like results in which he is more propitious to promote the sustainable urban development by means of the preservation, conservation and rational use of the natural resources, orienting the growth and more equitable development of the system of urban centers, optimizing the use and relations of the regional space, safeguard the subject territories of biodiversity to the ecological conservation of its environmental components.

Illustration: Identification of Territories with greater aptitude for urban Development according to intensity of use without affecting in greater measurement to the environmental components with greater wealth of biodiversity.



In this areas identified like results of model, which they are complementary to the polygons that are circumscribed to the interior of you limit them urban regulated and effective (to see attached illustration), considers of orienting the possible uses of the territory, trying which it is adapted according to its aptitudes, in order to generate one better quality of life to the population without altering the natural resources. From the previous thing, and from the raised objectives of territorial the urban dimension of the proposal of Plan, to revert the internal imbalances of the urban system and territorial spaces, projecting a structure of arrangement of the territory, that establishes the basic premises for the intervention of future areas with greater aptitude for the urban development, as far as distribution of activities in relation to the network of connectivities of the regional system.

An approach, that without a doubt allows to establish directives for the territorial management of strategic nature and therefore dynamic, concordant with the set of existing instruments of planning to the interior of the region.

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