

# REGIONAL SPATIAL PLANNING MAPS: A SINO-SWISS COMPARISON OF CARTOGRAPHIC VISUALIZATION METHODOLOGIES

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## Abstract

This paper is intended to provide some insight into the symbolic discrepancies in the cartographical expression of regional planning maps produced in China and Switzerland. Case maps of various planning tiers were selected from both countries for comparison. Planning systems of the two countries were reviewed with respect to their mismatched hierarchies, major plan contents, symbol modalities and visual styles, as well as their respective advantages. Such influential factors as regional context, socioeconomic development phase, planning and cartographic conventions and professions, and target users were identified to explain the dissimilarities. Then a strategy of ‘mutual reference and superiority of reciprocity’ was proposed to optimize visualization of spatial relations and balances between planning contents and forms, map makers and users, scientific and aesthetic visual styles. This attempt of cross-culture and cross-domain integration is expected to assist and improve the innovative use of cartographic workflows and visualization in regional spatial planning.

## 1 Introduction

Since the comprehension of ‘spatiality’ inherent in planning needs maps and other visual tools as an important media to reconfigure the structure, relations and trend of targets, final products of planning process are constituted not only in text but also in graphical expressions. Maps or cartographic visualizations as the most effective and ubiquitous manners are used to supplement verbal descriptions or directly explain policies (Faludi,1996), to communicate the key messages of spatial strategies by the help to translate, localize, and operationalize the vague concepts and to reveal the potentially conflicting demands and different parties’ priorities on the limited territory (Dühr,2005). Accordingly it can also assist in overcoming language barriers, reaching agreement and supporting institution-building (Dühr,2003; Neuman,1996). But from a

perspective of cartography, it would be argued that making maps for planning purposes is not easy in spite of their inevitable but inexplicit relationship.

Furthermore, under the increasingly solidified trend of regionalism, the metropolitan areas have reached a whole new level in transcending their boundaries (Gillham,2002), so that every city should move from the individual development to the urban-rural balance, and from the mutual competition to the regional harmony. As a consequence of that, a need for regional coordination has lent renewed urgency to the return of 'regional spatial planning' caring topics like urban agglomerations, city networks and others. And more perspicuity of the space prospects requires a more strategic or conceptual planning way at macro scales. Whereas spatial visions and metaphors that play an essential role in communicative process of the regional planning (Tatzberger,2006), the decision of what should be and how to visualized through cartographic methods for regional problems must be considered much more in the postmodern era than before, while mapping spatial strategies, concepts and policies could be specially assumed as an unfathomed focus.

Nevertheless, there remains a lack of sufficiently detailed studies and systematic understandings on regional planning maps and their symbolization. First, although Dühr (2003;2004;2005) chose planning traditions and planning cartography approaches in England and Germany to show the existing striking differences within Europe with respect to mapping for transnational territory planning and the spatial policies for Regional sustainable development, the knowledge of different cartographic representations is only scarcely available comparing the countries' situation and regional context, especially with a fundamentally different historical backgrounds, political systems and levels of economic development. Second, it is still unclear how symbolic languages exactly correspond to certain spatial issues. Since Brunet (1980) created the model of 'chorèmes' to abstract the spatial dynamic and hierarchic relationships and their organizational mechanisms, there has not been any further obvious progress on the description of relations between visual forms and the represented content for regional planning. So it should be necessary to answer 'which map graphics suits which themes', and to transcend the 'craft-disciplinary' attribute of planning cartography (Dühr,2003). Third, though the role of a plan and the underlying planning concepts determine both what is visualised as well as how it is visualized (Dühr,2004), sufficient studies need to be encouraged with emphasis on impacts of visual semantemes and a return to formal aesthetics besides the functional orientation, because the new situation of postindustrial and postmodern age makes any problem not settled merely with scientific, technological and functional notions. So a 'fast-sketch' style and 'diagrammatic-dialogue' manner are sometimes involved in showing complexities and uncertainties of spatial issues, in order to procure ideas and future portrayals or to achieve a base for consensus and actions.

Thus, with a cartographic point of view, this paper reasonably implemented a comparison of the discrepancy of cartographic visualizations for regional planning in

China covering spatial strategies for megalopolis, provincial urban system plans and comprehensive city plans, with the federal spatial concept and cantonal guiding plans in Switzerland.

## **2 Rationale and Methodology**

### *2.1 Basic situation of the spatial development in China and Switzerland*

To cater for a precondition of thorough regional differences, we select China and Switzerland as targets, one of which is the Asian largest but fastest developing country with a People's Congress regime and a typical Eastern culture, and the other is a small but highly developed country with a plurilingual Western culture and a federalistic, democratic structure and a long history of neutrality.

Due to an early start of planning, urban space in Switzerland has seemed finalized on the whole, and the internal competition among cantons and towns was not intensive. Nowadays advanced urbanization, high living standard, imperative environment protection, highly developed infrastructure and export-orientated service industries (Ma, 2005) cause conflicts between increasing land use pressure and stronger spatial control, and between regional development and transnational coordination under the European integration. As a result, urban spatial strategies need more state-level consideration on regional issues about urban network, public transport, and sustainable development.

Contemporarily, China has been in a new stage with a rapid urbanization, facing challenges on city revitalization, industrial restructure, composition of urban system and metropolitan area, and balancing urban-rural dual structure, while the harmony with natural resources and environment climbing up the agenda. Thus, most provinces and cities try to build closer connections to their underlying regions. However, the macro-control and planning on space consumedly lag behind the practical desire on a urgent estimation of the inexplicit future, so studies on spatial development strategies above county levels become more and more popular which take account of regional concordance and sustainable development, and are more initiative and flexible than that in Switzerland.

### *2.2 Planning systems and delimitation of 'regional planning' in China and Switzerland*

Switzerland is organized in three political levels, the Confederation, cantons and communes, and China's administrative framework comprises province, prefecture, county and, commune and township (Ma, 2005), but is more complex inside. For spatial planning always takes place within the administrative organization, planning hierarchies in Switzerland consists of federal, cantonal, communal levels (Muggli,2004), but in China may be defined from national, provincial and trans-provincial, prefectural, county, to communal levels (Mi,2001) (see Figure 1).

Thereinto, Switzerland implements a local autonomy and direct democratic rights, so the confederation just takes responsibility for framework legislation on spatial planning, and draws up some overall or special plans related to the whole national interests; the cantons builds a guiding or structural plan as well as relegate material executive issues to the commune, for instance the land use plans binding on landowners. Due to historic reasons the spatial planning in China meets with a coexistence of three parallel system of land use planning and territory planning, ‘regional’ planning, urban and rural planning respectively led by the *Ministry of Land and Resources*, *National Development and Reform Commission*, and *Ministry of Housing and Urban-Rural Development*, while the government at each level takes charge of actual planning activities. So the national level in both countries provides no exactly spatial plans but a global perspective and compendium of their territories like ‘Swiss spatial concept’ and ‘China nationwide urban system plan’, which imparts a set of requirements and guidelines at rest nether levels, where for example cantonal structure plans in Switzerland or city master plans in China are produced.

SWITZERLAND			CHINA		
Planning instruments	Planning tiers	Administrative levels	Planning tiers	Planning instruments	
			Nation	National	National territory plan National major function oriented zoning National overall land use plan National urban system plan
Swiss spatial order concept Swiss landscape concept Urban networked-system concept Federal special plans (Sectoral strategies and plans)	Transnational	Confederation	Province	Trans-provincial Provincial	'Regional' development strategy Metropolitan area plan Provincial major function oriented zoning Urban system plan *
	Federal				
	Large-regional				
Cantonal guiding plan * (Cantonal land use plan) * (Sectoral strategies and plans)	Cantonal	Canton	Prefecture	Prefectural	Strategy for urban spatial development City master plan * (Urban system plan) * Special plans *
'Regional' structure plan	Supramunicipal		County	County	Strategy for county spatial development County master plan * (Town system plan) * Special plans *
Communal overall concept Communal structure plan * Communal land use plan *	Communal	Commune	Commune	Communal	Communal overall plan * District plan and detailed plan * Special plans *

With regional consideration    \* With statutory force

Figure 1. Spatial planning systems in Switzerland and China

Moreover, because the concept ‘region’ can be defined in terms of political, physical, social, economic, cultural or other factors, however governmental agencies always use the term ‘region’ during planning process to delineate multi-administrative areas (Steiner,2007). So regional connotations are just found at the supranational, federal cantonal and supramunicipal tiers in Switzerland, in parallel with that at national, trans-provincial and provincial, prefectural and county tiers in China, such as those composed of more than one subunit (Figure 1).

### *2.3 Study cases, focus aspects and methodologies*

In the light of the definition of regional planning above, this paper chose the key maps in which two at federal level (Figure 2, a&b), two at cantonal level (Figure 2, c&d), and two at regional level (Figure 2, e&f) act as study cases of Switzerland, while one at country level (Figure 3, a), two at transprovincial level (Figure 3, b&c), two at provincial level (Figure 2, d&e), and two at municipal level (Figure 2, f&g) as cases of China. A majority of those uses a long-term time horizon up to 10 years or more.

A comparative investigation of the two systems concentrated on four aspects: a). the content, modalities and styles of symbolization regarding spatial relations and strategic or conceptual schemes; b). the thematic elements of planning information on a supernatant layer but not the topographic map features at a background layer; c). final communicative maps to present the future scenarios and objectives, not the map types as starting background for analyzing geographic realities or as participative platform; d). a balance between map production and usage and between expert planners and official or public audiences, and between rational cartography and creative infographs.

The comparison and analysis follows a procedural consecution of 'what-why-how'. First, planning contents of case maps and their symbolized legends are extracted and summarized. Then, comparisons of the characteristic differences of symbols' semantic modalities, visual variables, and styles are accomplished, considering the respective ad-

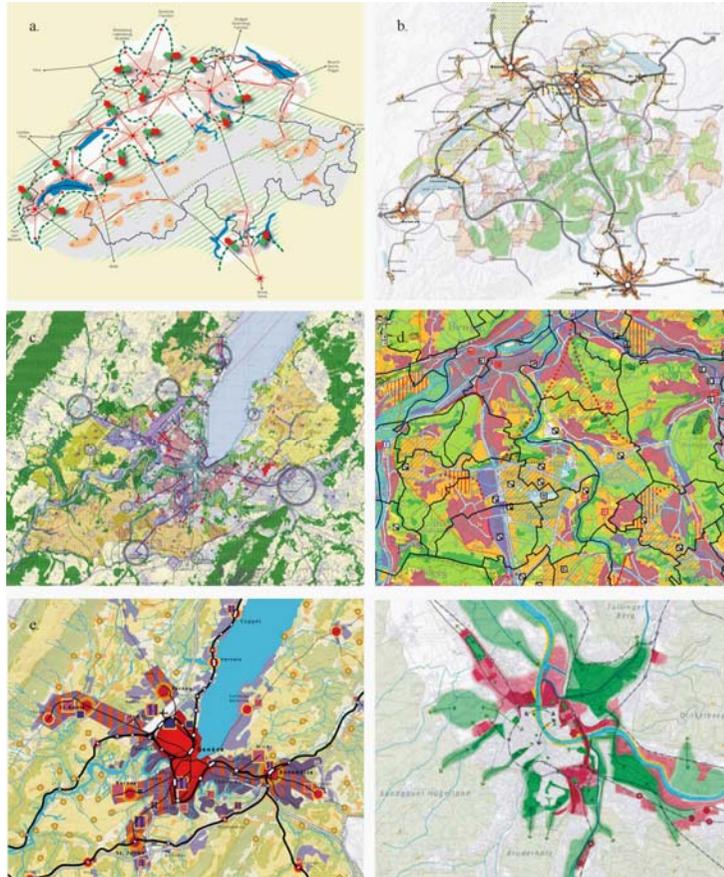


Figure 2. The case maps at different planning levels of Switzerland ( a. Urban-Rural Alliances in Switzerland 2030; b. Alternative Spatial Concept for Switzerland by Swiss 'Metron'; c. A Part of the Cantonal Master Plan Schema of Geneva 2015; d. A Part of Overall Map of the Cantonal Guiding Plan of Aargau; e. A Part of Cantonal Agglomeration Schema 2030 of Franco-Valdo-Genevois Region; f. Basic Features of the Spatial Development in Basel-Stat and the Surrounding )

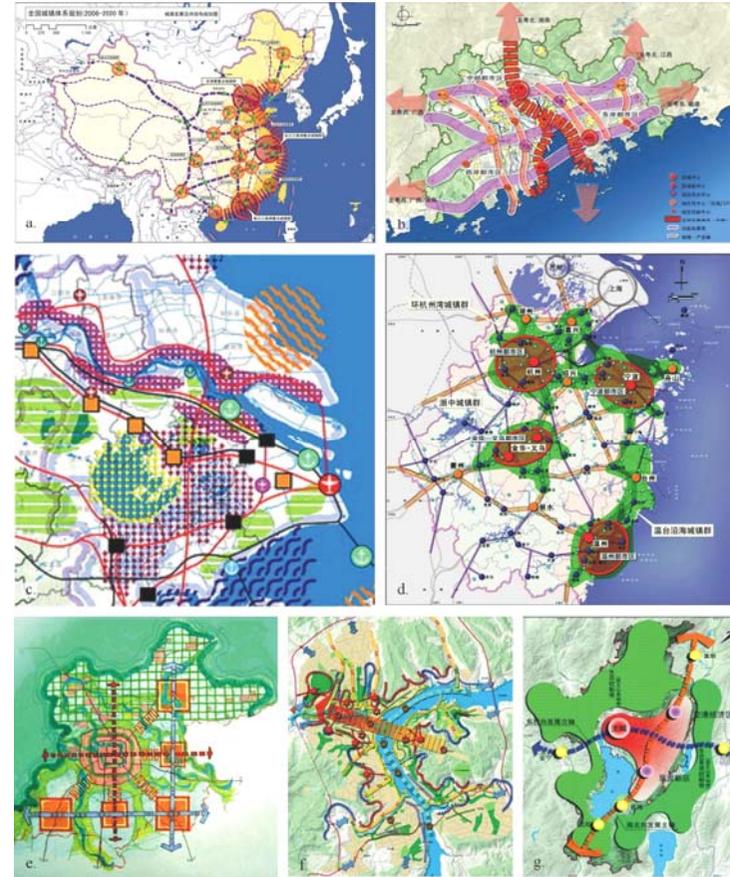


Figure 3. The case maps at different planning levels of China (a. China Nationwide Urban System Plan (2006-2020); b. Urban Agglomeration Plan of the Pearl River Delta (2002-2020); c. Urban Agglomeration Schema of Combined Development Region 'Shanghai-Suzhou-Wuxi'; d. Urban System Plan of Zhejiang Province (2008-2020); e. Beijing City Spatial Development Strategy; f. Master Plan of Wanzhou, Chongqing (2008-2020); g. Kunming City Master Plan (2008-2020) )

vantages of the two systems. Next, an analysis on possible causations of differences is structured, followed with a discussion on some optimal recommendations.

### **3 Results of the Comparison**

#### *3.1 Spatial planning contents represented on map*

The planning content determines their visual form, and is determined by development demands, judgments of the future, planning objects, core ideas and spatial policies. From the cases study, the planning content could be mainly categorized into four parts – ‘Urbanization’, ‘Landscape’, ‘Transport’ and ‘Other Use of Space’ at different regional levels except some case at federal level in Switzerland and the national tier in China.

The cartographic visualization in most Swiss regional plans prefers the extensive and complex use of multi-theme layering for all relative contents in a single key map. Distinguishingly, the *guiding plan of canton Aargau* in Switzerland as an exceptant also contains hazard and agglomeration maps besides the overall map. By contrary, the Chinese cases do not widely adopt that scheme, different topics are expressed separately in a series of maps, for example, the *City Master Plan of Kunming (2008-2020)* comprise more than 36 special maps but without any comprehensive map. By mean of the overlapping method, the Swiss plan maps, especially the cantonal guiding plans, can provide an integrated picture of spatial policies and their interrelationship, and help to visualize different territorial conflicts. Meanwhile, Chinese way of visualization side by side may give the impression of a clear and undisturbed spatial impact focusing on certain issues of the territory. In theory, all planning contents should have a spatial effect and should be located (if uncertain) on a map simultaneity, but Dühr (2005) argued that it could make the map very complex even over loading and illegible, although it could benefits the promotion of mixed-use developments rather than a division of functions in the territory. So it should be accepted definitely that the multi-theme layering is an ambivalent choice.

In Switzerland, every planning instrument considers the ‘land’ as the kernel object, that is to say the land equals ‘space’, so that each has some expression on land usage types and functional zoning. For instance, the whole territory at federal scale in *Urban-Rural Alliances in Switzerland 2030* has been described separately as urban, rural and mountain area, as well as detailed compartmentalization of land use is regarded as both the primary and terminal job in other cantonal guiding plans. As a result, topographic maps are popular as the base map to give certain geo-reference, which are convenient for demarcations supporting the overlaid thematic information. Whereas, regional planning in China as a strategic and conceptual instrument often takes normal administrative maps as backgrounds, but the topographic map just sometimes appears in urban district planning and, regulatory and site planning.

However, Chinese regional planning maps generally lay more emphasis on the overall spatial structure and relations, rather than a exhaustive and accurate land zoning about the territory, in order to give a macro-level pattern of spatial development. So at all

planning tier, graphic visualization takes a representation of urban system or city network as the foremost task, which can build a skeleton of the target space; especially at the trans- and provincial level, the regional planning are even titled as ‘metropolitan area plan’ or ‘urban system plan’ in spite of other problem also involved in. But spatial pattern and relations in Switzerland are unobtrusive and only strengthened at federal level, or at supramunicipal scale when different parts’ relationship need clear definitions.

Moreover, certain spatial concepts and regional policies imbued with ‘sustainable development’ spirit, such as decentralized concentration of urban system, urban-rural interactions, natural landscapes reserve, protection of agricultural area, corridors for wild life and so forth, are obviously visualized in Swiss cases prominently in ‘*Alternative Spatial Concept for Switzerland by Swiss ‘Metron’’*, but not enough in the Chinese cases. Although urban-rural balance, governance of cultivable land and polycentric spatial development become hot topics, which the government favors more and more for fulfilling the ‘Scientific Outlook on Development’, they have played a virtual but not necessary role on the regional planning maps. Instead, regional economic structure and industrial reallocation, and concepts like ‘strengthen and expand the city’, are focused more in Chinese practice but scarcely mentioned in Swiss cases, except a statement of ‘reallocation in industrial and artisanal areas’ from *Cantonal Master Plan Schema of Geneva 2015*.

### 3.2 Symbolic modalities, visual variables and styles of cartographic visualizations

Generally speaking, the vertical comparison of visual style of planning maps in the both countries’ planning systems show a great difference between federal and other levels in Switzerland, and a resemblance of visualization on thematic layers at all tiers in China to a certain extent in spite of diverse symbol faces. Then the transverse cross-comparison between the two countries denotes that the cartographic style of Swiss federal spatial concepts is analogous to the urban system plans above the prefectural level in China, but the Swiss cantonal plans are widely divergent from the Chinese provincial plans and even others.

First, land division or zoning in Swiss cases is more represented using area symbols with various and complex texture variables, while their overlaid combination with rigorous borders aims to give a controllable multi-usage pattern, and these are rather typical in cantonal guiding or structure plans. In China, functional zoning and some territorial governance choose more rough and generalized boundaries besides simple color fillings and the transparency variable, exceptively only natural and ecological reserve areas with areal textures are visualized in the *Combinated Development Region ‘Shanghai-Suzhou-Wuxi’*. By the way the possible undesirable readability caused by mixed-grain variables in Swiss plans remains an intractable challenge, but the guiding plan of cantons Aargau and Geneva developed GIS platforms to allow a flexible customization on selecting certain layers. And, withal, not all the pattern variants are

proved successful and effective in translating some social problems and policy information, for example in the case of *‘Alternative Spatial Concept for Switzerland by Swiss ‘Metron’*, a lot of recondite concepts was tried to be located on maps, but the deficient and similar legends led to confusions in the part ‘To make walk-able neighborhood as the urban basic unit’.

Second, the symbolization on most Chinese cases has a unique system of ‘semantic modalities’ matching demands of illustrating the possible territorial structure, spatial relations and developing trend from a holistic view. Those can be summarized as ‘Key Catchy Phrases’ consisting of specially visualized components such as ‘pole, nucleus or center’ - ‘axis or ridge’ - ‘wing, corridor or belt’ - ‘annulus or wreath’ - ‘group or cluster’- ‘area or zone’. For instance, the regional development system has been abstracted as a phrase of ‘one ridge, three belts and five axes’ in the *Urban Agglomeration Development Plan of the Pearl River Delta (2002-2020)*. However, the similar concepts like ‘development axes’ are only found in the *Cantonal Agglomeration Schema 2030 of Franco-Valdo-Genevois Region*, but not so popular in others.

Third, it is clear that the geometrical forms with some cultural or philosophical meanings are more attractive. A remarkable and valuable design focusing on the shape variants is a ‘bidirectional arrow’ in the *Urban-Rural Alliances in Switzerland 2030*, perfectly represents the property of ‘unity of opposites’ in ‘urban-rural interconnection’ (Figure 4), which is inspired from the famous Chinese ancient philosophical illustration called ‘Tai-chi’ in which the notion of ‘Yin-Yang’ elucidates a dynamic duality, so it is a recommendable exemplar for creating symbols with good cultural trait.

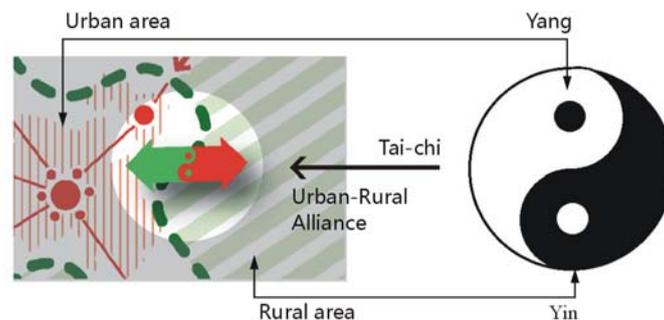


Figure 4. The sign of ‘Tai-chi’ as a reference for the symbol of ‘urban-rural alliance’

Next, beyond Bertin's elementary visual variables, some of the extended variables such as crispness (or fuzziness) and transparency (MacEachren,1995), and others like gradient speed, perspective, shading (shadow and embossing) are sometimes assimilated into planning cartographic visualizations in both countries. For example, in Swiss cases, bidirectional arrows with a shadow move the ‘urban-rural alliance’ to the foreground, transparent land-use covers make the underlying shaded relief or topographic map seeable, and fuzzy borders of the areas with development potentials enhance the spatial uncertainty. In Chinese cases, it is much of fashion to utilize shadow and embossing to

model a solid vision, and to use gradient-colored flow lines to give a dynamic impression of development trends or directions.

## **4 Discussion and Recommendations**

### *4.1 Possible causations for the Sino-Swiss differences of planning cartography*

Subsequently, the analysis reveals that the difference of regional planning cartography is not only determined by the content, functional role and motivation of a plan, but is also potentially influenced by the factors following:

*Region context and developing situations:* the Sino-Swiss difference of planning instruments and visualizing methodologies at the same planning level can mainly understood through the dislocation of their administrative hierarchies caused by a great disparity of territorial area, for example, average area of 20 cantons and 6 half-cantons in Switzerland covers circa 1600 km<sup>2</sup> and that of 34 provincial units in China are circa 280000 km<sup>2</sup>. Besides, locational condition of neutrality, the mountain-dominated geographical surrounding, and the developing perspectives under the process of European integration all have significant impacts on the Swiss regional planning, so it lays more stress upon public policies than physical development while orients plans towards a guidance and restriction on land at the low tiers. Otherwise, China's new stage of reformation and development, and the centralized governance also bring on different functional demands and planning objectives. The faster economic growth and more powerful regional competitiveness as a main melody forces the planning in China to take effect instantly and to give a global strategic concept but not specific reasoning of its implementation, thus, plan maps always act as 'beautiful portraits' of leaders' subjective expectation or even arbitrary intention.

*Planning and cartographic convention and professions:* The academic and educational system and the market of modern planning in China were established in the middle of 19th century and influenced successively from foreign systems, together with intermixing of three systems mentioned above, so that these results in a quite imbroglio of planning maps quality, namely with different faces and localized styles from different designers and organizations. In comparison, a sophisticated legal framework and planning institution in Switzerland with a bidirectional decision procedure, which is assisted with a time-honored tradition of mapping theories and technologies, makes planning maps at each level remain a canonical visual style. Although in both countries, planning executors was multiplex from special companies, official units to university institutes, mainly planners but seldom cartographers or graphic designers conduct the mapping activities, because planning maps usually first satisfy the functional and scientific needs and then the visual art needs. And map makers can most easily control the symbolizations, so the map products looks very objective and rational in Switzerland and a little rough and disharmonic in China. Consequently we should ask that can plan-makers absorb new innovative cartography visualizations?

*Consideration of target users:* maps users are significant for realizing the planning policies, and their capabilities of decoding the multi-level information on map are distinct from each other. Moll pointed out that, planning maps should be successfully aimed both at politicians and the general public, so they should not only to be the often very technocratically designed official planning maps as legal documents (1993). But the current situation in both countries shows a confusion of officials, experts and the public. And the government leaders obviously are the main user targets in China while people in local communes are assumed as the decisive user group in Switzerland. Accordingly, Chinese case maps are so flaring to fascinate officials' eyes, and Swiss maps with detailed demarcation on land are beneficial to win attentions from local landowners or relative stakeholders.

#### *4.2 Conception of alternative optimization strategies*

Since it would undoubtedly benefits the spatial planning visualization to syncretize the advantages of totally different planning traditions based on the perspicuity of their differences. This paper put forward an idea of 'mutual reference and superiority of reciprocity' as an alternative optimization strategy, which namely means learning more concretely from each other's superiorities but put aside weaknesses, and seek common grounds to enhance the audiences' comprehension on spatial issues, while preserving diversities of styles of graphic design., and consists of following aspects:

*Representations of spatial relations and planning concepts as a core task:* for spatial planning essentially deals with reconfiguration and optimization of spatial hierarchies, structures, patterns, interactions and trends, and planning maps are not only an unproblematic and objective mirror of nature but also effective hermeneutic approaches to communicate planners' ideas (Dühr, 2004). So it is reasonable to believe that the comprehensive strategies or conceptual plans of regional development are equal to the explanation and indication of various types of spatial relations, while regional planning maps are their visual medium. Thus, it is more useful to focus on spatial structures at macro scales,

*Bidirectional consideration of planning contents and their visual form:* the pivotal character of planning cartography is a reconstruction of symbols location and arrangement according to the semantic modalities. Therefore, plan map symbols should keep achieving coherence between its contents and formats. On one hand to answer which visual graphics suit to which themes, functions, purposes and contexts; and on the other, an overall demarcation of three components of space, time and theme is necessary for selecting matching visualization methods.

*Balancing map makers and users:* the communication towards users is the terminal course in planning process, and its efficiency is the precondition for carrying out the whole plan. But the requirements of different user groups affect the design and the

complexity of cartographic visualisations (Lutterbach,1998). So we must to consider the differences of users' cognitions of graphics, and to harmonize the 'internal efficacy' in the production of translating planning objects and concepts to their visual configuration, with the 'external efficacy' in the reverse usage process of reconstructing connotative information of graphics for users' recognition (based on Söderström's theory of 'internal and external efficacy', 2000). So Figure 5 shows a new logic model of planning cartography, in which map production and usage are linked and three main bodies of 'objects & objectives', 'users' and 'planners & mappers' interact with each other.

*Balancing scientific and aesthetic visual styles:* it is crucial to improve the convincing and attractive potential of cartographic visualization to ensure a clear understanding of core planning concepts for diverse stakeholders. Moreover, a trans-cultural and trans-institutional integration can be motivated through building up harmony between regulatory and nonbinding, conceptual and practicable, rigorous and indicative, creative and conventional, detailed and abstract principles of cartographic visualizations. In this sense, the scientific cartographic methods and the creative design are requested to complement each other. Especially because visual art can break out endogenous weakness of the regional difference of planning thoughts by emotional impacts, and can balance the fuzziness and attractiveness to ensure the extensive acquaint of planning information or uncertainties. So an interdisciplinary approach will finally enrich the theories of thematic cartography as well as their applications.

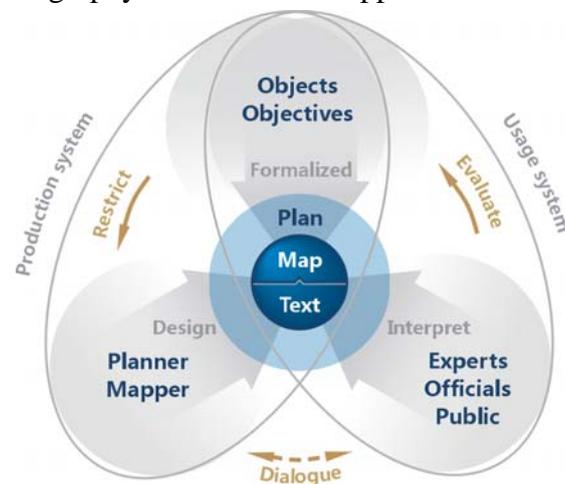


Figure 5. Logic model of spatial planning cartography system

## 6 Conclusion

Because further study on cartographic methods in regional spatial planning has suffered an ignorance and even a miss by the predominance of functionalism, it is hypothesized that there were significant differences of their usage wherever in developed or developing countries. Then this paper presented the results of a comparative analysis

between China and Switzerland at different planning tiers, with a view to the plan contents and their symbolic modalities and visual styles. In Switzerland, regional planning emphasize particularly on a realistic description of 'policy and guidance' with regulatory, static and conventional symbolization like area symbols mainly using complex textures, and scientific and objective styles like topographic maps as base maps which give territory zoning boundaries a detailed, rigid, precise and interpretable reference. However, in China, more importance is attached to impressive portrayals of overall concept and strategic spatial pattern using diverse, magniloquent, recapitulatory and schematic symbols integrating vivid colors and shading effects, and many flexible, laconic, attractive and creative styles, which miss an accurate georeference so that won't give practicable guidelines to the lower planning tiers. However, the symbol system in Chinese cases has better logics and hierarchies but not harmonious and exquisite visions as Swiss cases do. And these mainly caused by regional contexts and other factors. For instance, the Switzerland focuses on a land-centered principle and a low-level orientation while the China prefers dealing with leader's ideas with macro-scale descriptions.

In a word, it is vital to accept regional differences of spatial planning cartography, and to consider the harmonious and sustainable development as the goal, and the future as the point of reference. Therefore, this work expects to benefit each planning institution and could improve the adaptability of each visual expression system to diverse social, economic, politic and natural environment needs, and to shape attention to relevant issues in the field of planning cartography, so that to enrich the theories of thematic cartography as well as extend its applications. In the future, further researchs would be motivated to give the cartographic visualizations more value of spatial policies and concepts, and to draw up certain symbolization standards for at high levels of regional planning, such as a basic symbol catalog of spatial relations and structures.

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