

# **A SYSTEM DYNAMICS STUDY of RESORT DEVELOPMENT PROJECT MANAGEMENT in TOURISM REGION: A CASE STUDY of GUILIN**

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## **ABSTRACT**

*Tourism industry has been promoted as one of the most effective development strategies in many poor areas in China. Yet, the tourism development patterns in many areas have shown unsustainable. The reason for the unsustainable is mainly due to the inability to manage the image of tourism, a public resources for all the tourism developers, in these regions. Regional tourism bureaus have not formulated proper management structures to screen the tourist resort development projects. Thus, although these projects have to individually pass cost-benefit analysis, they actually bring damage to the regional image of the tourism, the public resource in tourism industry. Guilin is one of the earliest four tourism regions opened to international tourists in China. It has the advantage of easy access compared with the other tourism sites. However, its market share keeps on declining with its tourism development. Various researches have done to address this issue but many have emphasized the exogenous factors, such as the South-east Asian financial crisis, etc. Yet, the over-supply of tourism development resorts has not been understood. Therefore, the further decline of Guilin tourism will keep on going. A system dynamic model has been built to understand the impact of rush development of tourism resorts on the Guilin tourism industry development and to formulate policies to address this issue.*

*Keywords: tourism development, system dynamics, Guilin, quality tourism*

## **INTRODUCTION**

Guilin is one of the earliest four tourism regions opened to international tourists in China. It has the advantage of easy access compared with the other tourism sites. However, its market share keeps on declining with its tourism development. Various researches have done to address this issue but many have emphasized the exogenous factors. Therefore, policies are normally formulated to address the external factors which are assumed to cause the problem. These policies often ignore to address the internal problems normally generated by the structure. Yet, the problematic internal structure always makes any interventions ineffective.

In this paper, we analyze the internal structure of Guilin tourism development which cause the decline of comparative advantages and then efficacy of the proposed or implemented policies.

We accomplish this by constructing and experimenting with a System Dynamics model of Guilin tourism development. This model provides an opportunity to experiment with the various infrastructure polices proposed and implemented in the past and to understand their performance under controlled conditions. Such experimentation also helps to resolve some of the debates on tourism development policies. Finally, they help to outline an operational policy framework for an effective intervention.

Technical details of the model, including a machine readable listing in Vensim simulation software,<sup>1</sup> for replicating the experiments discussed in this paper and for further experimentation, are available from the authors on request.

## IDENTIFICATION OF PROBLEM

Guilin is one of the earliest four tourism regions opened to international tourists in China. Guilin has been historically famous for its beautiful nature and peaceful environment. It also has the advantage of easy access and relative mature tourism products compared to other tourism sites. However, its market share keeps on declining when large scale of tourism development started in the 80s (figure 1). Various researches have done to address this issue but many have contributed the unsatisfied development to the exogenous factors, such as the Southeast Asian financial crisis, etc. Lack of quality control in tourism development has been ignored. Quality of the tourism industry is reflected as the attractiveness which is an intangible indicator and which takes a long time for managers to perceive any changes. Therefore, major strategies used for tourism development are to increase duration time of tourists in Guilin, promote market and attack illegal tourism agencies, etc. The over-supply of tourism development resorts, the most powerful driven force for declining quality, has not been understood. New resorts are still being planned and constructed. Guilin tourism development is trapped into a vicious cycle.

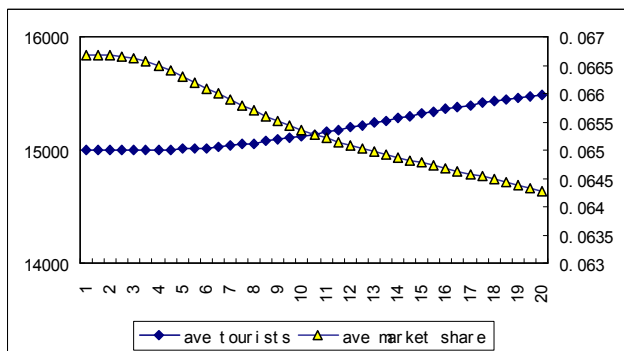


Figure 1 historical pattern of international tourists in Guilin (Data source: Guanxi Tourism Statistical data 1999; Huan 1997)

## A BRIEF INTRODUCTION OF ANALYTICAL METHODOLOGY: A SYSTEM DYNAMIC APPROACH

The declining of market share in Guilin is a dynamic problem. Normally the causes for the dynamic problem are rather complex due to two reasons. First of all there are always time delays between the causes of the problem and the perceived problems. Secondly, the causal relationships between the causes and the consequences are non-linear. Therefore, it is difficult to extrapolate the future trend based on the historical data only. System dynamics introduced in this study is help to relieve the constraints embodied in the conventional methodologies.

System dynamics has been in use for over three decades (Forrester 1961, 1968). System dynamics has remained in the domain of complex modeling methodologies involving computer simulations and feedback analysis. Only by doing so, the nature of structure can be understood and validated against the historical pattern.

Basic structure of system dynamics modeling includes stocks and rates. Stocks are the accumulations and are the present values of these variables that have resulted from the accumulated difference between the inflows and

<sup>1</sup> A trade mark of Vantana Systems, Inc., 149 Waverly Street, Belmont, MA 02178, USA

outflows. Rates define the present, instantaneous flows between the levels in the system. The rates correspond to activity, while the levels measure the resulting state to which the system has been brought by the activity (Forrester 1961).

### MAJOR STAKEHOLDERS IN THE GUILIN TOURISM INDUSTRY AND THE THEIR DECISION MAKING PROCESS

There are five major stakeholders in Guilin tourism industry. There are tourists, travel agencies and other service providers, tourism site developers, illegal tourism operators and public management institutions.

Before tourists make final decisions on travelling to Guilin, they are Guilin's potential tourists who have the motivations and financial capacity to travel to Guilin. Potential tourists are a stock (shown as a rectangle box). The stock increases when people are attracted to Guilin. The stock decreases when potential tourists either eventually make their decisions to travel to Guilin or drop the idea of traveling to Guilin. Therefore, the stock has one inflow rate and two outflow rates. Percentage of actual tourists out of potential tourists is largely determined by perceived attractiveness of Guilin and availability of service and infrastructure (figure 2).

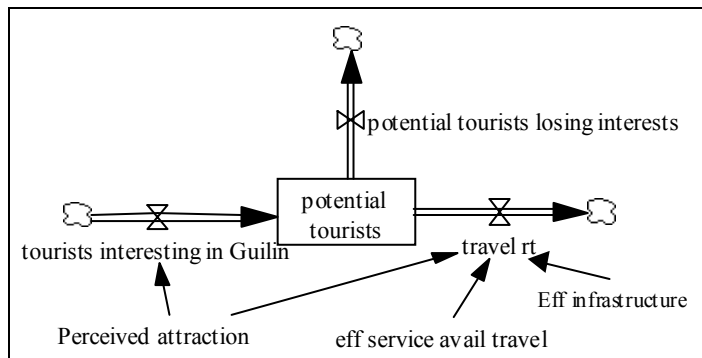


Figure 2 potential tourists

Tourists are common properties for all the tourist site developers. Tourist site developers invest in Guilin when they expect that tourists be attracted to Guilin. Meanwhile, for policy makers, capital investment is a relative easily perceived indicator for economic development and political achievement. Favorable investment policies have been formulated for the investment on resort development. Therefore, tourist resorts have been constructed rapidly and a substantial portion of resorts has developed poorly. When Guilin tourists experienced the poor quality resorts, bad word of mouth for its tourism attraction (figure 3).

Market for travel agencies and other tourism service providers is very competitive and the time to enter this market and to expand service capacity is short. The normal pattern of tourism service market is supply over demand in China. Only under extreme circumstances, for example, Chinese Spring Festival and Chinese National Day, service is in shortage. According to Huan (1997), due to over supply of hotels and travel agencies, prices offered by these agencies have declined below the minimum price requirement. Service quality reduces because staffs are poorly paid.

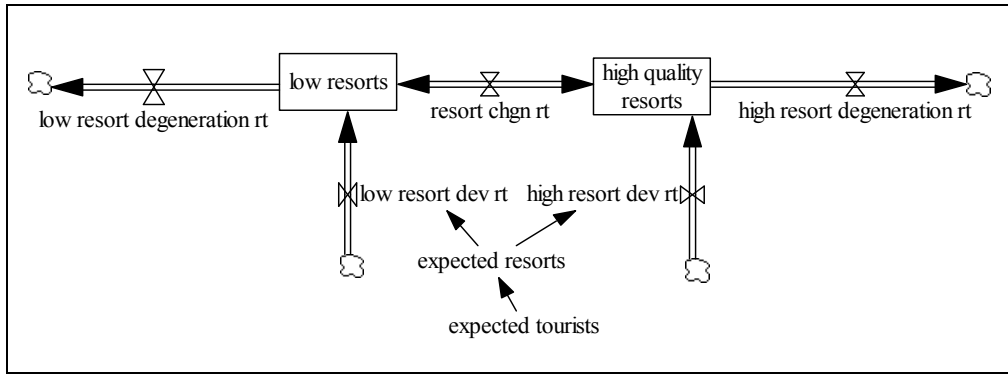


Figure 3 Development of tourist resorts

Apart from the formal tourism service operators, illegal operators including some formally legal operators who are also engaged in illegal activities are quite active due to lack of regulations and poor implementation of existing regulations. Illegal activities are to cheat tourists to undesirable resorts or to force tourist to consume. The intensity of illegal activities determined by the utilization rate of tourist resorts, the utilization of the service capacity and the relative ratio of the low quality resort that reduces financial returns on tourist resorts and service facilities threatens the safety of tourists in Guilin (figure 4).

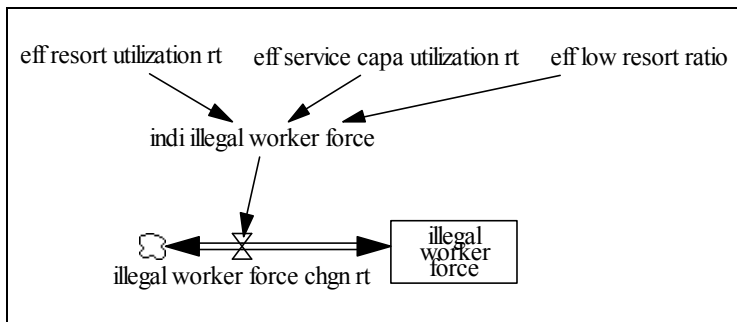


Figure 4 illegal worker force

The fifth major stakeholder is the public management institutions. It is still the responsibility of public sector that provides infrastructure, such as information or physical infrastructure. However, the building of infrastructure always involves delays (Xu 1999, figure 5) and infrastructure becomes bottleneck for tourism development.

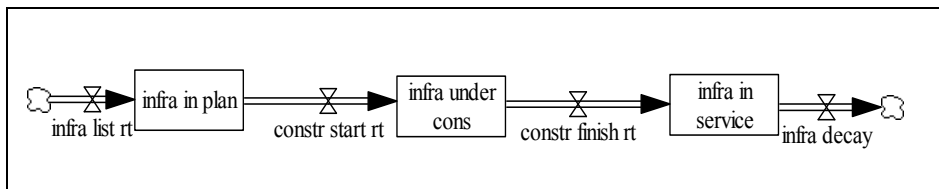


Figure 5 supply chain of infrastructure facilities

Research shows that tourist satisfaction with their visit is not directly correlated with use density or gross numbers. Satisfaction is more closely correlated with environmental quality, the adequacy of facilities and programs and the accuracy of expectations that are all determined by the management capacity (Graefe et. al., 1984; Beaumont, 1993). To maintain visitor satisfaction in crowded locales, protection of natural features must be assured, facilities must be capable of handling the numbers, services must be high quality, and visit expectations must be

appropriate. Therefore, management capacity has to be strengthened prior to the development of tourism to ensure a quality and healthy development. Yet, in China, the improvement of institutional capacity in tourist management is arduous and lagged behind (figure 6).

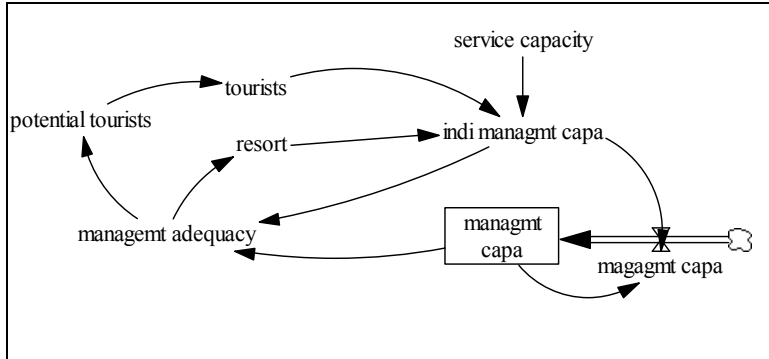


Figure 6 Adjustment of institutional management capacity

**FEEDBACK ANALYSIS OF GUILIN TOURISM INDUSTRY DEVELOPMENT**

Quality control is the major problem in the existing management structure. The last 20 years have seen a dramatic rise in consumer awareness of the concept of product quality. Researches done elsewhere have shown that the most popular reason for the choice of a destination, selected from a list of 20, was the scenery/views are good? Followed by the weather and peace and quiet? Results of many surveys also highlight the importance of the quality of the natural environment to leisure travelers (Eagles 1997). The public sector that has an important role in quality control has lagged behind. The public sector gives scant attention to visitor use quality, the prevailing attitude being that the tourists take, or leave, what is provided. Quality control is seldom mentioned in the existing government policy and strategies. Within this context, the quick and unselective development of tourist sites becomes a dominant pattern in Guilin tourism development and has results in negative effects. The feedback loop analysis is shown in figure 7. The figure shows that over supply of tourist resorts brings five negative major feedback loops which constraint development of Guilin tourism. Over supply of tourist resorts first reduces the utilization rate of the resorts and leads to increased illegal activities (-1). Quick and over supply of tourist resorts also generates a wide range of low quality resorts and reduces the duration time while tourists experience in high quality sites (-2). Quick and over supply of tourist resorts also creates pressures on tourism management bureaus and reduces the effectiveness of tourism management. Decay of high quality resorts accelerates and construction of low quality resorts speeds up. Therefore, the percentage of low quality resorts rises (-3).

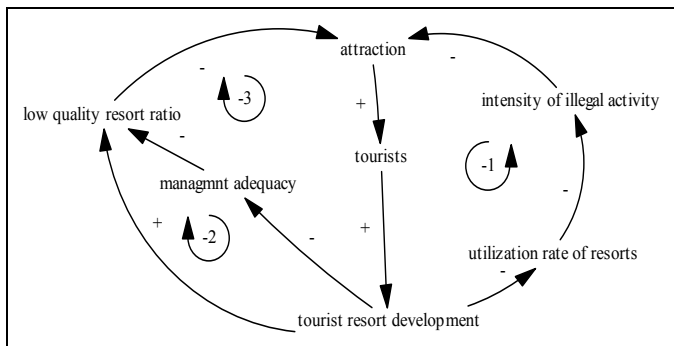


Figure 7 Feedback loop analysis of over supply of tourist resorts

**MODEL SIMULATION of INTERNATIONAL MARKET IN GUILIN**

Base simulation has been run in order to test the above hypothesis to explain the declining market share of Guilin tourism and to validate the model structure. The model is initially set at equilibrium and then is knocked out by increasing international tourists interested in China and increasing interests for resort development. Base simulation results are shown in figure 8-a and figure 8-b. At the beginning of the simulation, Guilin tourists increases due to expansion of resorts, service capacity and increasing potential Chinese tourists. Yet, since the expansion of resorts is rapid and the public management capacity building is normally lagged behind, a substantial percentage of new resorts are developed poorly. Yet, management resources still are diverged to these poor quality resorts, fewer resources are allocated to manage quality resort properly. Decay of quality resort thus accelerates. Also, since tourist resorts are over developed and thus total visits to these resorts are generally lower than the expected tourists designed in project proposals. Competition for tourists among the resorts and among service providers becomes furious. Demand for illegal activities to grasp tourists rises. Tourists' experience and perception of safety and high quality travel decline. Overall attractiveness of Guilin has been declining when the development of resorts started (figure 8-a). Word of mouth deteriorates and fewer tourists are attracted to Guilin after some delay.

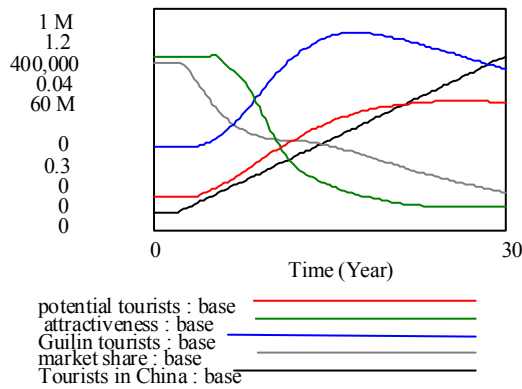


Figure 8-a Base simulation

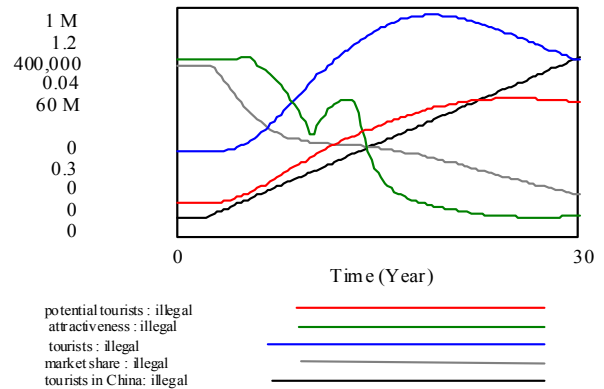


Figure 9 Attack the illegal market

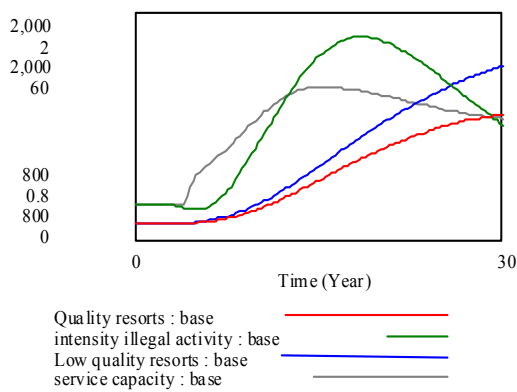


Figure 8-b Base simulation

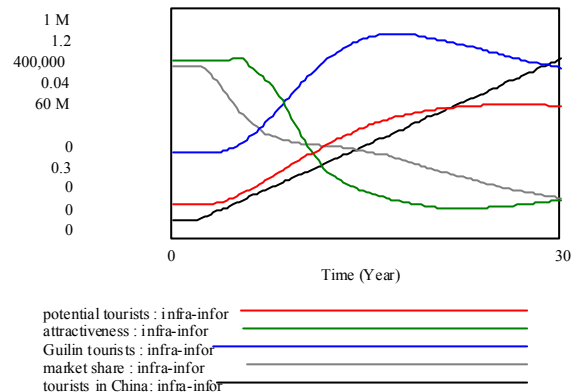


Figure 10 Policy run: infrastructure construction

**POLICY SIMULATIONS**

Various policies have been suggested and implemented to obtain more international tourists to Guilin, typically, policies to attack illegal market, to construct infrastructure including information infrastructure, to promote market

and etc. Yet, very few are effective in the long run because the over construction of tourism resorts is still not under control. Figure 9 is the simulation results of the policy to attack illegal market intensively. The figure shows that intensity of illegal activities reduces in Guilin during the implementation of the policy. Attractiveness rises for a short time after the policy is implemented for sometime and then declines again. The patterns of tourism development stay the same. Figure 10 is the simulation results of the construction of physical infrastructure and information infrastructure. The policy generates the same patterns of tourism development as the base run. The ineffectiveness of the policy is due to two reasons. First of all, although increased availability of information for tourists can give good perception and experiences of safe tour in Guilin, dissatisfaction of tourism in Guilin may increase because of enlarged gap between the expected experience and the actual experience due to normally exaggerated promotion words. Secondly, construction of physical infrastructure improves the financial returns on resort investment. More resorts are developed due to increased availability of physical infrastructure.

Only policies that target at quality development of resorts can gradually improve the attractiveness of Guilin.

## CONCLUSIONS

Guilin tourism industry has several characteristics that make the public management important and difficult. Guilin tourism depends on its attractiveness that has been, a public resources for all the stakeholders of Guilin tourism industry. Rush for resort development is in fact a free riding of Guilin attractiveness that has been built on for centuries. Yet since attractiveness is an intangible, indivisible and immeasurable resource, it is difficult and maybe impossible for the tourism management bureaus to monitor and manage it directly in Guilin. However, careful and selective approval of the new resort development is the precondition for sustainable development of Guilin tourism.

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