

Analysis of the Risk of Cultural Loss in the Process of Displacement

-- Take Maldives for Example

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Abstract

This article analyzes the risk of cultural loss in the process of environmentally displaced persons' displacement. From three aspects: the value of culture itself, the influence of recipient country on culture and the international protection of culture. This article divides the three aspects into eight factors. By consulting the data, the influence degree of each factor was compared, the weight of each factor was calculated by using Analytic Hierarchy Process, and then calculate the scores of host countries from the perspective of cultural loss risk with Principal Component Analysis, so that the appropriate recipient country could be selected according to the score for better cultural protection.

Keywords

Analytic hierarchy process, Principal Component Analysis.

1. Analysis of the Problem

Due to sea level rise[1], many areas are about to be flooded or are at potential risk of being flooded. People in these areas need to plan their migration strategies in advance so that they can respond when danger strikes. In migration strategies, the risk of loss of the unique culture, language, and life of EDPs also needs to be taken into account[2]. So we analyze the risk of cultural loss in order to pick the right place to move[3]. We divide the risk of cultural loss into three aspects: the cultural value of environmental displaced country, the influence of recipient country and the international protection.

The cultural value of environmental displaced country includes cultural inheritance, cultural uniqueness (material culture, social culture) and cultural influence. The influence of recipient country includes the degree of difference (cultural difference, environmental difference), policy protection measures and the development degree of recipient country. International protection includes material and policy support. Then we use Analytic Hierarchy Process[4] to analyze each factor and get the weight. Then, we use the Fuzzy Comprehensive Evaluation Method to determine the average evaluation value of the influence of recipient country. We use the scoring system to quantify the factors that affect recipient country, so that the units of each factor are consistent. We multiply the weight obtained by Analytic Hierarchy Process and the average evaluation value to obtain the weighted average evaluation value, and finally form the comprehensive evaluation value of each resettlement, that is, the evaluation model of the best resettlement location can be obtained.

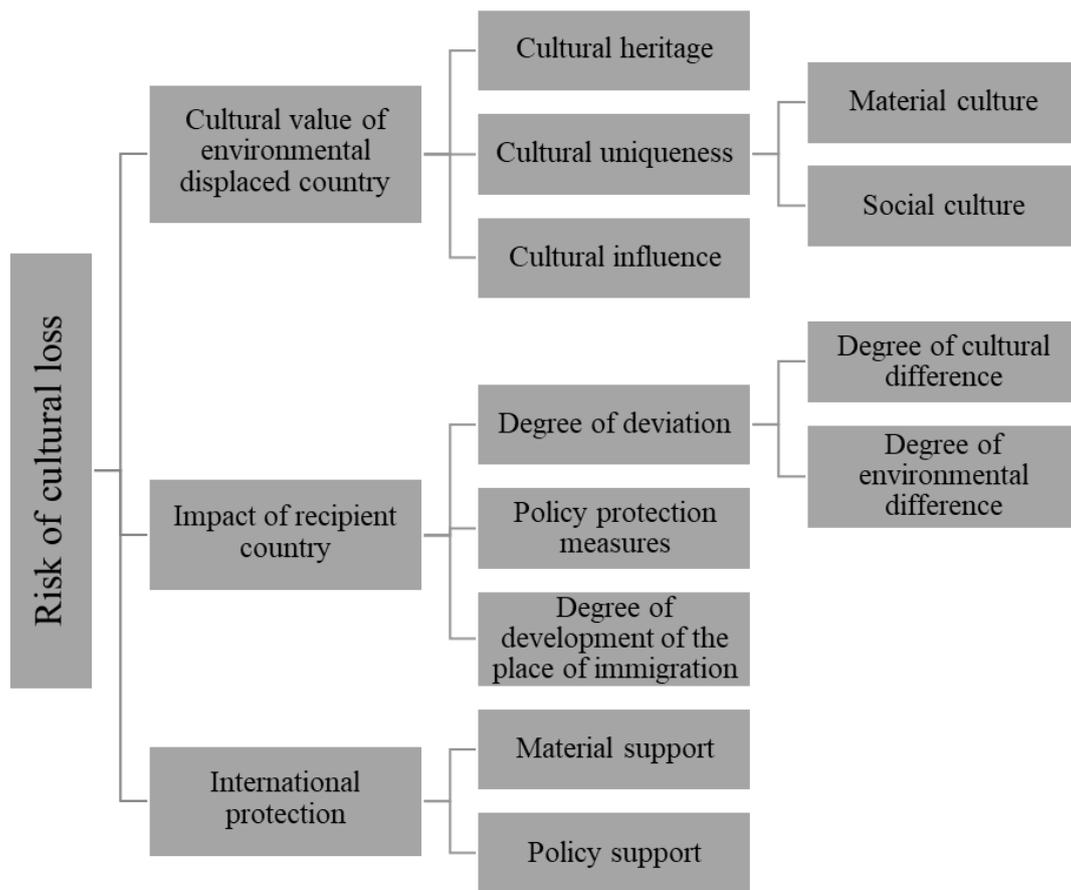


Figure 1. Risk factors of cultural loss

2. Model Design

The main factors we consider for the risk of cultural loss are as follows:

Table 1. Rank priority of factors

factors	symbol	Rank priority
Local material and cultural uniqueness	MC	1
Local social and cultural uniqueness	SC	1
Degree of cultural difference	CD	2
Degree of environmental difference	ED	2
Local cultural heritage	CH	3
International policy support	IP	4
Policy protection measures of recipient country	PP	4
International material support	IM	5
Local cultural influence	CI	6
Degree of development of recipient country	DD	7

Using analytic hierarchy process, we construct a judgment matrix for the priority of each factor of cultural loss risk, and determine the structure of each factor. The following formula can be obtained:

Take two factors a_i and a_j at a time to compare their influence on the risk of cultural loss, and a_{ij} is used to represent them, the results of all comparisons are expressed in paired comparison matrices.

$$A = (a_{ij}), a_{ij} > 0, a_{ij} = \frac{1}{a_{ji}}$$

A is a positive reciprocal matrix.

For example, in the risk of cultural loss:

$$a_{12} = 1/2 = \frac{C_1(\text{Local material and cultural uniqueness})}{C_2(\text{The degree of cultural difference between the place of immigration and the local area})}$$

Expression: the importance of C1 to the risk of cultural loss is 1, and the importance of C2 to the risk of cultural loss is 2.

The pairwise comparison matrix is as follows:

$$A = \begin{pmatrix} 1 & 1 & 2 & 2 & 3 & 4 & 4 & 5 & 6 & 7 \\ 1 & 1 & 2 & 2 & 3 & 4 & 4 & 5 & 6 & 7 \\ 1/2 & 1/2 & 1 & 1 & 3/2 & 2 & 2 & 5/2 & 3 & 7/2 \\ 1/2 & 1/2 & 1 & 1 & 3/2 & 2 & 2 & 5/2 & 3 & 7/2 \\ 1/3 & 1/3 & 2/3 & 2/3 & 1 & 4/3 & 4/3 & 5/3 & 2 & 7/3 \\ 1/4 & 1/4 & 1/2 & 1/2 & 3/4 & 1 & 1 & 5/4 & 3/2 & 7/4 \\ 1/4 & 1/4 & 1/2 & 1/2 & 3/4 & 1 & 1 & 5/4 & 3/2 & 7/4 \\ 1/5 & 1/5 & 2/5 & 2/5 & 3/5 & 4/5 & 4/5 & 1 & 6/5 & 7/5 \\ 1/6 & 1/6 & 1/3 & 1/3 & 1/2 & 2/3 & 2/3 & 5/6 & 1 & 7/6 \\ 1/7 & 1/7 & 2/7 & 2/7 & 3/7 & 4/7 & 4/7 & 5/7 & 6/7 & 1 \end{pmatrix}$$

Table 2. The weight of each factor of cultural loss risk

Factor	MC	SC	CD	ED	CH
Weight	0.2303	0.2303	0.1151	0.1151	0.0768
Factor	IP	PP	IM	CI	DD
Weight	0.0576	0.0576	0.0461	0.0384	0.0329

3. Model Testing

Consistency test of Analytic Hierarchy Process:

Calculate the maximum eigenvalue of A above: $\lambda_{max}(A) = 10$

Consistency Indicators: $CI = \frac{\lambda_{max}(A) - 6}{6 - 1} = 0$

Find out: $RI = 1.12$ $CR = \frac{CI}{RI} = 0 < 0.1$

This shows that A is not a consistency matrix. However, A has satisfactory consistency and the degree of inconsistency of A is acceptable. The results are credible and accept the original model.

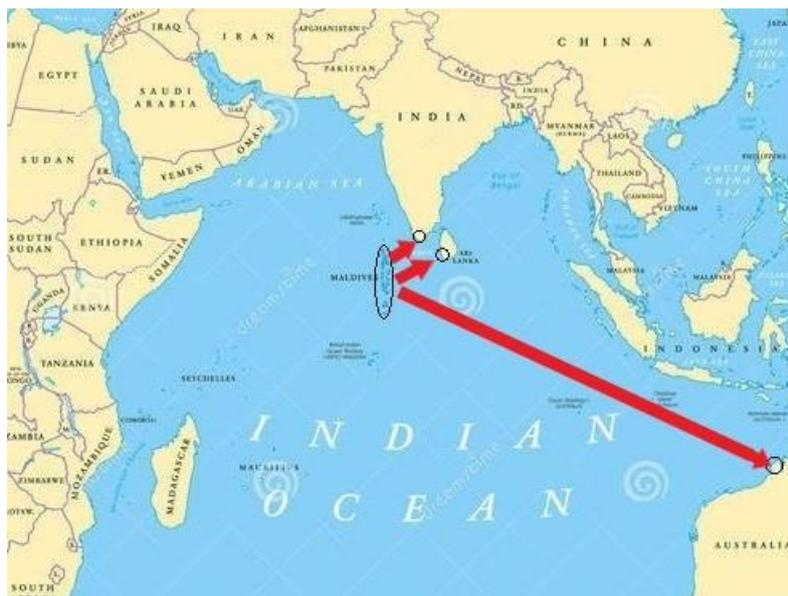


Figure 2. Maldives migration route

Due to sea level rise, many areas are about to be flooded or are at potential risk of being flooded. People in these areas need to plan their migration strategies in advance so that they can respond when danger strikes. In migration strategies, the risk of loss of the unique culture, language, and life of EDPs also needs to be taken into account. So, we analyze the risk of cultural loss in order to pick the right place to move. We divide the risk of cultural loss into three aspects: the cultural value of environmental displaced country, the influence of recipient country and the international protection. The cultural value of environmental displaced country includes cultural inheritance, cultural uniqueness (material culture, social culture) and cultural influence. The influence of recipient country includes the degree of difference (cultural difference, environmental difference), policy protection measures and the development degree of recipient country. International protection includes material and policy support. Then we use Analytic Hierarchy Process to analyze each factor and get the weight.

We take Maldives as an example. After quantifying 8 factors, we use principal component analysis to analyze 8 indicators of 3 countries to migrate, calculate the principal component, construct the comprehensive evaluation function F , and then select the best country to relocate after the weighted sum of each principal component is obtained.

Table 3. Comprehensive scores of each country

Country	Evaluation	Ranking
India	2.199811931	1
Sri Lanka	1.537247725	2
Australia	1.296041131	3

4. Climate Refugee Protection Policy

In order to enable the residents who have lost their habitat due to climate reasons to live normally in the resettlement area, we proposed the following climate refugee protection policies [5] [6]. (EDPs means Environmental Damage Persons)

1. Recipient country should guarantee the basic human rights of refugees, such as health care, education and employment. As EDPs continue to enter recipient countries, their health care,

education and employment will come under greater pressure. Recipient country should ensure the basic living needs of EDPs, such as helping them build infrastructure such as hospitals and schools. At the same time, recipient countries can expand their own industries to absorb more workers and promote local economic development while solving the problem of EDPs employment.

2. All countries in the world undertake the responsibility of receiving EDPs in a common but differentiated way. In terms of the policy of accepting EDPs, it is impossible to receive EDPs with the same standard due to the difference in economic strength between developing countries and developed countries. Countries will do their best to cooperate internationally to build and improve refugee response capacity.

3. Implementing relevant measures and providing assistance at the national, regional and international levels. Our policies include international assistance, national responsibility and regional coordination. Internationally, the United Nations has provided protection for EDPs through the formulation of UN Framework Convention on Climate Change and other conventions. In terms of the country, environmental displaced country should make relevant plans in advance and sign an agreement with recipient country before moving. At the regional level, recipient country is required to provide land for the resettlement of EDPs and make appropriate plans in advance in the region to prepare for the reception and prevent regional conflicts.

4. Recipient country shall protect the religious belief, language and other cultures of environmental displaced country. After citizens of environmental displaced country enter recipient country, recipient country should respect the religious belief and language of environmental displaced country and ensure the cultural freedom and equality of citizens of environmental displaced country. At the same time, recipient country should actively introduce policies to guarantee the cultural integration of environmental displaced country.

5. EDPs receive unified management and enjoy certain political autonomy. Autonomous regions can be established in the places where EDPs live, and citizens enjoy certain political autonomy. It is suggested that the government of the autonomous region should send some representatives to participate in the political decision-making of the country, so as to cultivate citizens' sense of national responsibility and sense of identity.

6. To retain maritime jurisdiction over the vanished islands. The biggest victims of sea-level rise are small islands, and in the absence of territory, the UN could propose a scheme to recognize small islands' maritime jurisdiction, reserving jurisdiction over the island's sea area.

5. Improvement of Model

After using the model to determine the immigration place, we also need to carry out real-time tracking and investigation of the resulting situation in the implementation process, so as to achieve the purpose of dynamic modification of the policy[7]. Because the goal-oriented model only USES preset goals to evaluate, it ignores the evaluation of some unexpected or unexpected policy effects. Here we use the side-effect assessment model to refine the proposed policy, extending the goal-directed model to include side-effects as well. It is characterized by the consideration of side effects while retaining the evaluation of the preset target. The policy side effect is a concept corresponding to the preset target effect, which mainly refers to the effect of the policy outside the target scope, that is, the public policy may produce some other consequences beyond the expected results. After the improvement of the proposed policy, we used the side-effect assessment model to analyze specifically the changes in cultural diversity in the six main impact areas listed. In terms of cultural diversity change, EDPs have a low impact on cultural transmission after they enter recipient country, because they need to adapt to the local environment and build a new country. Over time, EDPs will gradually integrate into local

society, and their influence will further speed up cultural transmission. In this case, we use the side effect assessment model to evaluate the possible future effects, and propose improvement measures[8]. For example, relevant majors should be set up in colleges and universities in advance to conduct research and analysis on cultural integration. Inherit the navigation and hunting skills of the climate refugees and apply them to their current residence.

6. Conclusion

We find that the uniqueness of local material culture and local social culture is the primary consideration of immigrants. India and Sri Lanka are close to Maldives in terms of culture, diet and climate, and their cultural and environmental differences are small, so they are the primary consideration of Maldives. Because Australia has a large area of uninhabited land and a long coastline, it has the inheritance function for Maldives' fishery, tourism and other characteristic industries; moreover, Australia is a developed country, which can provide great help for Maldives' immigrants, so it is also considered by Maldives. In addition, we have formulated a series of policies to protect the legitimate rights and interests of climate refugees to immigrant countries.

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