

Chapter 13

Main Features of GEC

The GEC evaluation indicator system is a comprehensive evaluation system composed of 1 primary indicator, 5 sub-indexes, 16 pillars and 60 individual indicators covering five aspects, i.e. REC, EEC, ECC, EMC and EHC. Within this system, every part is closely related, infiltrating and influencing one another and their inherent uniqueness and relevance. Accordingly, the evaluation results of GEC comprehensively represent the development level and competitive strength of the countries in the five aspects of resource environment, ecological environment, environment carrying and environment management. Of course, the environment competitiveness of all countries also show some characteristics and rules, both the general rules universally existing in each country and the special rules determined by the different national conditions.

Through the evaluation on GEC of 2012, this report objectively and comprehensively analyses the development level and the gap of GEC, profoundly understands and grasps the development laws and characteristics of all countries, and recognizes the essence and inherent features of GEC. It's of great theoretical and realistic significance to research and find the right approaches, methods and counter measures so as to direct the countries to enhance the environment competitiveness by taking corresponding measures based on the special national conditions of them.

13.1 Environment Competitiveness Is the Overall Representation and Combined Result of Economic, Social and Natural Environment, Reflecting the Capacity and Level of the Countries on Sustainable Development

GEC covers the five aspects of resource environment, ecological environment, environment carrying, environment management and environment coordination. Besides the influence of natural resource environment, it also reflects the comprehensive

influence of economic and social factors on natural environment. So to speak, environment competitiveness is the overall representation and combined result of economic, social and natural environment; it reflects the capacity and level of the countries on sustainable development in an all-around way. Such a feature is represented in the setting of the indicator system and the variation of the evaluation results of environment competitiveness as well.

According to the evaluation and comparative analysis on environment competitiveness of all the countries, it is observed that: the developed countries behave well on environment competitiveness generally while a majority of developing countries behave poorly, showing a large difference between the developed countries and the developing countries. According to the behavior of sub-indexes, a majority of the countries with higher scores of sub-indexes (except for EEC) are developing countries; the developed countries remain only intermediate level. Comparing with developed countries, many developing countries are “crippled”. A majority of them are not balanced on the sub-indexes and thus the developed countries are still higher than the developing countries on overall environment competitiveness. For example, Morocco, ranking at 95 on environment competitiveness: both the ECC and EHC rank ahead, at 13 and 33 respectively; but the REC, EEC and EMC rank behind, at 119, 102 and 97 respectively, which drags down the overall ranking of environment competitiveness greatly. As a further example, Bangladesh, ranking at 99 on environment competitiveness: the REC, ECC and EHC all rank ahead, at 4, 74 and 41 respectively; but the EEC and EMC rank behind, at 132 and 119 respectively. Thus the overall environment competitiveness ranks behind. There are also other developing countries like this, such as Guinea, Oman etc. Either one or two sub-indexes of them rank far behind and drag the overall environment competitiveness. On the contrary, the developed countries are balanced on the sub-indexes. For instance, Norway, ranking at 3 on environment competitiveness: none of any sub-indexes ranks ahead except REC, but all the other sub-indexes rank not behind, about 20. No serious “Short Slab” indicator for Norway and so, Norway enjoys very high environment competitiveness overall. As a further example, Finland, ranking at 28 on environment competitiveness: it also has not any sub-index ranking pretty high or very low, EEC (at 32) the highest and ECC (at 85) the lowest, and all the sub-indexes are balanced. So, Finland ranks relatively high on environment competitiveness (as shown in Table 13.1).

The analysis above indicates that GEC is the result of five aspects working in concert: REC, EEC, ECC, EMC and EHC. All of them shall develop in a balanced way; a short slab tends to cumber the enhancement of overall competitiveness and results in the backwardness of overall environment competitiveness. Only when all behave well, they can support the overall advantage of environment competitiveness. Furthermore, it also indicates the crucial importance of analysis on sub-indexes, pillars and even individual indicators. Merely by the primary indicators, we may not make a correct analysis on the inherent factors and variation characteristics of environment competitiveness: the essence is likely to be concealed behind

Table 13.1 Rankings of representative developing countries and developed countries on environment competitiveness and sub-indexes

| Country | Rank | | | | | |
|------------|-----------------------------|-----|-----|-----|-----|-----|
| | Environment competitiveness | REC | EEC | ECC | EMC | EHC |
| Morocco | 95 | 119 | 102 | 13 | 97 | 33 |
| Bangladesh | 99 | 4 | 132 | 74 | 119 | 41 |
| Guinea | 100 | 62 | 122 | 3 | 96 | 112 |
| Oman | 109 | 128 | 59 | 49 | 91 | 107 |
| Norway | 3 | 6 | 25 | 21 | 23 | 15 |
| Finland | 28 | 43 | 32 | 46 | 35 | 85 |

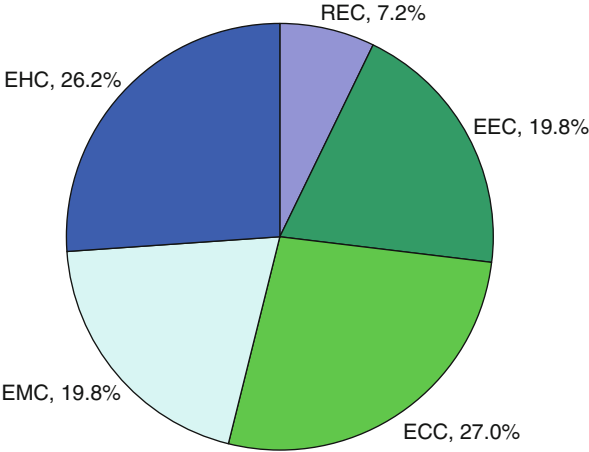
the appearance. While by focusing on the analysis of sub-indexes, pillars and individual indicators, we could make profound analysis on the essential characteristics and the real reason of changes for environment competitiveness. During the development process hereafter, the countries should focus on all the aspects of environment competitiveness, advancing in a comprehensive and coordinated way. Much importance should be attached to and effective measures should be taken for those indicators ranking behind especially, thus to improve and enhance them and to ensure the advantage of environment competitiveness.

13.2 ECC Contributes the Most to the Overall Score of Environment Competitiveness, the Countries Differs Slightly on the Scores of REC and ECC and Differs Greatly on the Scores of EEC, EHC and EMC

Figure 13.1 depicts the contribution rates of GEC sub-indexes to the primary indicator (i.e. the environment competitiveness). According to this figure: ECC contributes the most to environment competitiveness at the rate of 27.0 %; EHC also contributes a lot with the rate up to 26.2 %; EEC and EMC both contributes at 19.8 % and REC contributes the least, only at 7.2 %. Therefore, during the process of enhancing the environment competitiveness, the countries shall focus specially on ECC and EHC, while not ignoring REC, EEC and EMC.

According to the analysis before, it is also observed that EEC, EHC and EMC have the standard deviation of 9.3, 9.1 and 8.9 respectively, which are both the main factors causing the environment competitiveness differences among the countries. Relatively, REC and ECC have lower standard deviation, 6.8 and 5.3 respectively, of which, ECC has the lowest standard deviation and exerts the least influence on the environment competitiveness differences among the countries. It also means the environment competitiveness differences among countries are mainly represented in EEC, EHC and EMC with little differences in ECC. Therefore, the countries with

Fig. 13.1 Contribution rates of sub-index scores of GEC



larger differences of environment competitiveness from the other countries shall specially step up their efforts in EEC, EHC and EMC to narrow the differences and catch up.

Furthermore, it can also explain why the REC scores of developed countries are lower than those of most developing countries but the overall environment competitiveness scores are still higher: because many developed countries though are lower than the developing countries at the REC scores with wide margin in ranking, the contribution rates of REC to environment competitiveness are not very great due to the little and not obvious differences of REC scores among the countries; so the overall environment competitiveness of developed countries are influenced slightly by REC. Besides, the developed countries score higher on the other four sub-indexes, surpassing most developing countries, so the environment competitiveness of developed countries is higher than that of most developing countries finally.

13.3 Developing Countries and Developed Countries Differ Greatly, and the Emerging Market Countries Have Much Room for Improvement

Table 13.2 compares the average scores and contribution rates of developed countries, developing countries and emerging market countries on environment competitiveness and the sub-indexes. It should be noted that United Nations Educational Scientific and Cultural Organization (UNDP) modified the groups of countries in Human Development Report 2010 issued on Nov. 4, 2010 and makes the number of developed countries or regions up to 44. In this way, of the 133 countries covered in this report,

Table 13.2 Average scores and contribution rates of different types of countries in environment competitiveness and sub-indexes

| Country | Item | | Environment competitiveness | | REC | | EEC | | ECC | | EMC | | EHC | |
|---------------------------|-------|-----------------------|-----------------------------|-----------------------|-------|-----------------------|-----------------------|-----------------------|-------|-----------------------|-----------------------|-----------------------|-------|-----------------------|
| | | | Contribution rate (%) | | Score | | Contribution rate (%) | | Score | | Contribution rate (%) | | Score | |
| | Score | Contribution rate (%) | Score | Contribution rate (%) | Score | Contribution rate (%) | Score | Contribution rate (%) | Score | Contribution rate (%) | Score | Contribution rate (%) | Score | Contribution rate (%) |
| Developed countries | 53.0 | 100.00 | 17.9 | 6.74 | 58.1 | 21.95 | 68.0 | 25.66 | 54.4 | 20.52 | 66.5 | 25.13 | | |
| Developing countries | 48.5 | 100.00 | 17.8 | 7.35 | 46.0 | 18.97 | 66.6 | 27.51 | 47.3 | 19.51 | 64.6 | 26.67 | | |
| Emerging market countries | 49.7 | 100.00 | 18.0 | 7.23 | 45.2 | 18.19 | 68.0 | 27.36 | 52.3 | 21.03 | 65.1 | 26.19 | | |

34 are developed countries and 99 are developing countries. What's more, the non-developed countries of G20 are recognized as emerging market countries, 10 in all, including Brazil, Indonesia, Mexico, Russia, Saudi Arabia, Argentina, Turkey, China, India and South Africa.

It is observed from Table 13.2 that developing countries and developed countries differ greatly: the developed countries score 53.0 points on environment competitiveness, 4.5 points higher than that of the developing countries and 3.3 points higher than that of the emerging market countries; the developing countries score lower than the developed countries on all sub-indexes, and there are very large differences on EEC and EMC, respectively 12.2 points and 7.1 points. Emerging market countries score slightly higher than that of developing countries on overall environment competitiveness, with the difference of 1.2 points. But it has a big gap with the developed countries, with the difference of 3.3 points. The score of emerging market countries on EEC are very low, even lower than that of developing countries, and 12.9 points lower than that of developed countries. It greatly pulls down the overall score of environmental competitiveness of emerging market countries.

According to the contribution rates of sub-indexes to environment competitiveness, in developed countries, the contribution rate of REC to environment competitiveness is the lowest, just 6.74 %, and the contribution rates of other sub-indexes are higher than 20 %. Therefore, even though the contribution rate of REC is close to that of the developing countries and is lower than that of emerging market countries, it has no great influence on environment competitiveness and the inferiority of REC can be easily mended by the superiority of other four sub-indexes thus the overall environment competitiveness score is still higher than that of the developing countries and emerging market countries.

Furthermore, according to the country distribution of each echelon for environment competitiveness, among the 34 developed countries, 8 are placed in the first echelon, accounting for 80 %; while among the 99 developing countries, only 2 are placed in the first echelon, showing great difference. The number of developed countries in the second echelon is 2 lower than the number of developing countries. Quite a number of developing countries are placed in the third-fifth echelons, 86 in all, accounting for 86.87 of the total; while among the 34 developed countries, only 17 are placed in the third-fifth echelons, only accounting for 50.0 % of the total. In the fifth echelon, only 2 are developed countries, while up to 31 are developing countries, accounting for 93.94 % of the total in the fifth echelon. The emerging market countries behave not so well in environment competitiveness as in economy. Only 1 of them is placed in the first echelon and the rest are all in the third-fifth echelons, among which, 6 countries are placed in the fourth echelon, accounting for 60 % of the total (Table 13.3).

All the above indicate the developed countries behave well in environment competitiveness, score high and rank ahead; while most developing countries score low and rank behind in environment competitiveness and the emerging market countries should also enhance their environment competitiveness further.

Table 13.3 Number and ratio of the countries in each echelon of environment competitiveness

| Country | First echelon | | Second echelon | | Third echelon | | Fourth echelon | | Fifth echelon | |
|---------------------------|---------------|-----------|----------------|-----------|---------------|-----------|----------------|-----------|---------------|-----------|
| | Number | Ratio (%) | Number | Ratio (%) | Number | Ratio (%) | Number | Ratio (%) | Number | Ratio (%) |
| Developed countries | 8 | 23.53 | 9 | 26.47 | 8 | 23.53 | 7 | 20.59 | 2 | 5.88 |
| Developing countries | 2 | 2.02 | 11 | 11.11 | 22 | 22.22 | 33 | 33.33 | 31 | 31.31 |
| Emerging market countries | 1 | 10.00 | 0 | 0.00 | 2 | 20.00 | 6 | 60.00 | 1 | 10.00 |

13.4 Scores of Environment Competitiveness Differ Slightly Among the Regions but the Ranks Differ Greatly: The Countries of Oceania, Europe, South America and North America Rank Ahead While Asian and African Countries Rank Behind

Table 13.4 lists the average scores of the 133 countries covered in this report by continent (six continents, omitting Antarctica due to no country there) on GEC as well as the numbers and ratios of the countries in the first and second echelons in 2012. As shown in Table 13.4, in 2012, Oceania scores the highest in environment competitiveness, up to 56.3 points; South America, North America and Europe also score rather high, hitting 53.5, 53.0 and 52.3 respectively; Asia and Africa score the lowest, 47.5 and 46.7 points respectively. The score ratio of the six continents is 1.02:1.12: 1: 1.20: 1.13: 1.14, with little differences.

The score differences are little among the continents but the ranking differences are rather great. In number, Europe enjoys the most countries in the first echelon, 6 in all; other continents have 1 country in the first echelon respectively except Africa.

Europe still enjoys the most countries in the first and the second echelons, 12 in all, far beyond the other continents; North America and South America the next, 7 and 6 respectively in all; both Asia and Oceania have 2 countries; Africa have only 1. In ratio, Oceania enjoys the highest ratio of the countries in the first echelon to total countries of it, up to 50 %, and then Europe, South America, North America and Asia; Africa is 0. By further analysis, Oceania hits 100 % for the ratio of the

Table 13.4 Average scores of the six continents in environment competitiveness and numbers and ratios of the countries placed in the first and second echelons

| Region | Item | | | | | | |
|---------------------------------|-----------------|---------------------|-----------|---------------------|-----------|---------------------|-----------|
| | Environment | Number and ratio | | Number and ratio | | Number and ratio | |
| | competitiveness | of the countries in | | of the countries in | | of the countries in | |
| | Average Score | Number | Ratio (%) | Number | Ratio (%) | Number | Ratio (%) |
| Asia (39 countries) | 47.5 | 1 | 2.56 | 1 | 2.56 | 2 | 5.13 |
| Europe (36 countries) | 52.3 | 6 | 16.67 | 6 | 16.67 | 12 | 33.33 |
| Africa (33 countries) | 46.7 | 0 | 0.00 | 1 | 3.03 | 1 | 3.03 |
| Oceania (2 countries) | 56.3 | 1 | 50.00 | 1 | 50.00 | 2 | 100.00 |
| North America (13 countries) | 53.0 | 1 | 7.69 | 6 | 46.15 | 7 | 53.85 |
| South America (10 countries) | 53.5 | 1 | 10.00 | 5 | 50.00 | 6 | 60.00 |

countries in the first and second echelons to total countries of them, and then South America, North America and Europe. Asia and Africa both have low ratio, 5.13 % and 3.03 % respectively.

Therefore, both in number and in ratio, Oceania, South America, North America and Europe are strong on GEC with wide gaps from the other continents in ranking and holding the front places in the rankings. In view of the specialty of Oceania (only two countries of New Zealand and Australia), it's normal to score high and rank ahead. South America and North America are also very strong on environment competitiveness, above a half of the countries for the both placed in the first and second echelons. Among the 36 countries of Europe covered in the evaluation, 30 % of them are placed in the first and second echelons, indicating its strong environment competitiveness. Asia and Africa are weak in environment competitiveness, as respectively 39 and 33 countries are covered in the evaluation, but Asia has only 1 country falling into the first echelon and even Africa has none; in the second echelon, there are both only 1 country, at the ratio of 5.13 % and 3.03 % respectively. Therefore, Asian and African countries shall enhance their environment competitiveness further.

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