Environmental Pressure Index (EPI) for Korea

Jung-Su Choi
National Statistical Office, Statistical Analysis Div.
920, Dunsan-dong, Seo-gu
Taejeon, Republic of Korea
Jschoi@nso.go.kr

Yu-Gu Kweon
National Statistical Office, Statistical Analysis Div.
920, Dunsan-dong, Seo-gu
Taejeon, Republic of Korea
Kweon@nso.go.kr

1. Introduction

The purpose of the EPI is to provide diversified quantitative information for environmental pollution and overall environmental discussion about environmental issues of Korea. The EPI is based on the approach used by the korean pressure indicators of point sources. The categories of environmental issue include 9 environmental issues, such as greenhouse effect, ozone depletion, acidification, eutrophication, ecotoxicological effect, resource depletion, photo-oxidation, loss of bio-diversity and noise vibration. The EPI for Korea covers the years from 1986 to 1999.

2. Method

The scope of the EPI for Korea covers the key environmental problems and man-made pressures affecting the problem development. The EPI can be used as a part of the environmental and economic accounting. The EPI procedures can be divided into five different phases:

1. Calculation of direct pressure
2. Aggregation of pressures into problem Indices by equivalency factors and weight by environmental pressure indicators: the equivalency factor describes the relative contribution of each pressure to the problem. Internationally agreed equivalency factors are available only with respect to the greenhouse effect, ozone depletion and acidification.
3. Normalisation of problem indices
4. Valuation of environmental concerns: in this model the results of the pair-wise comparision of environmental concerns are analysed by the analytical hierarchical process(AHP)
5. Calculation of EPI

3. Results

The intention of present work for analysis is relatively simple. Summarizing results of EPI calculation :

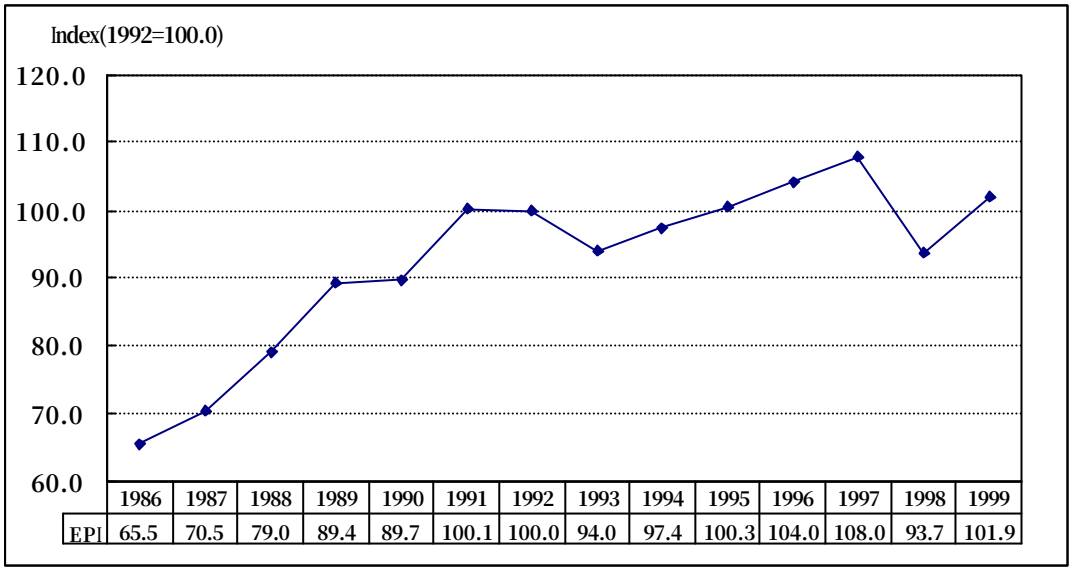
- When we assume value of 1992 as 100, value of EPI for Korea was aggravating trend
- The EPI has increased 3.5 % between 1986 and 1999
- The increase of EPI is resulted from the fact that main causes of environment worsening were greenhouse effect, ecotoxicological effect

The limits of this work are the following: first, because related data which should be included in calculation of current EPI are deficient in Korea and second, calculated EPI could not reflect all environmental issues and accurate environmental issues.

The EPI reveals development needs for environmental data and for valuation methods. The emphasis of future work ought to focus on the following subject matter fields:

1. Development of data production with respect especially to the basic pressure data and data on environmental impacts of pressures for the further development of problem-specific equivalency factors
2. Development of the model approach with respect to methods of valuation of environmental concerns

Figure 1. Environmental Pressure Index for Korea (1986 – 1999)



	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
EPI	65.5	70.5	79.0	89.4	89.7	100.1	100.0	94.0	97.4	100.3	104.0	108.0	93.7	101.9

REFERENCES

Jesinghaus, J. (1999), A European System of Environmental Pressure Indices – First Volume of the Environmental Pressure Indices Handbook, European Commission, Joint Research Centre; http://esl.jrc.it/envind/theory/handb-htm

Puolamaa, M. ,Kaplas, M. and Reinikainen, T. (1996), Index of Environmental Friendliness – A Methodological Study, Statistics Finland, 1996.

Satty, T. L. (1988), The analytic Hierarchy Process, Eta Services Ltd., Beccels Suffolk

RESUME

L' objet de la composition de la Pression de l' Indice Environnementale(PIE) en Corée est pour offrir le changement sur la condition de la pollution environnementale. Cet indice comprend 9 points environnementals. Le résultat montre que PIE augumente continuellement entre l année 1986 et 1999 en Corée, et la condition de la pollution environnementale est en train d' aggraver.