

V .M. GORBACHUK

## Equilibria of international public goods

*V. M. Glushkov Institute of Cybernetics, Kyiv, Ukraine  
E-mail: GorbachukVasyl@netscape.net*

In the case of ordinary pure public product, the utility function of any country equals to  $U^i\left(w^i - g^i, \sum_{j=1}^n g^j\right)$ , where  $w^i$  – income or wealth of the country  $i$ ,  $g^i$  – its contribution to common public good at constant prices,  $\sum_{j=1}^n g^j$  – aggregate provision of a public good by the alliance of  $n$  countries. In the case of partial public product, the utility function of the country  $i$  equals to  $U^i\left(w^i - p(n) \times g^i, \sum_{j=1}^n \gamma_j^i g^j, f^i(g^i)\right)$ , where  $p(n)$  – average value of contribution to a common good,  $\gamma_j^i$  – coefficient of differential external effect on country  $i$  from country  $j$ ,  $f^i(g^i)$  – direct utility of the country from its own contribution.

Provision of a common public good to each alliance member is a voluntary contribution of public consumption product within the group. Therefore, the alliance will provide a public good for its members at non-efficient, sub-optimal level. The reason of inefficiency is that total marginal benefits exceed individual marginal cost in the equilibrium at voluntary provision of a public good.

[1] В. М. Горбачук. *Методи індустріальної організації*. А.С.К., Київ, 2010.

[2] M. C. McGuire, C. H. Groth, Jr. *Quarterly journal of economics*, **100** (1985).