Forest Policy and Economics xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Forest Policy and Economics

journal homepage: www.elsevier.com/locate/forpol

Reforestation policy integration by the multiple sectors toward forest transition in the Republic of Korea

Mi Sun Park [a,*], Youn Yeo-Chang [b]

[a] Department of Environmental Planning, College of Life and Environmental Sciences, Konkuk University, 120 Neungdong-ro, Gwangjin-gu, Seoul 05029, Republic of Korea
[b] Department of Forest Sciences, College of Agriculture and Life Sciences, Seoul National University, 1 Gwanakro, Gwanakgu, Seoul 08826, Republic of Korea

ARTICLE INFO

Article history:
Received 16 September 2014
Received in revised form 25 January 2016
Accepted 25 May 2016
Available online xxxx

Keywords:
Policy integration
Forest transition
Reforestation
Republic of Korea

ABSTRACT

The Republic of Korea (ROK) started to experience forest transition in the 1960s in spite of severe deforestation and forest degradation by the mid 1950s. This ROK case followed the state policy pathway to forest transition. This study interpreted the reforestation policy of the multiple sectors in ROK with the theory of environmental policy integration. ROK has attempted an integrated policy program for reforestation, land management and social development as an innovative approach to solving the problem of flood and erosion due to deforestation while pursuing economic growth. This integrated approach to reforestation of ROK was implemented in three pillars of action: 1) coordinated national plans, 2) collaboration among the governmental branches, and 3) organizational reformation. The integrative approach helped the reforestation policy to be implemented successfully. The case of policy integration for reforestation in ROK is a good example demonstrating that policy integration should be a principle of forest policy design and implementation. The Korean experience could be informative to developing countries experiencing deforestation for design and implementation of forest policy to avoid deforestation and achieve forest transition.

1. Introduction

Deforestation is an ongoing process that began centuries ago. Most of contemporary forest loss is taking place in developing countries, especially in tropical regions (Park et al., 2013). Deforestation in these countries is commonly linked to various economic sectors like food production, energy sourcing, or the timber sector. Agriculture expansion, wood extraction, and infrastructure extension have been identified as indirect causes of deforestation, and thus they also need to be considered if the reversal process, forest transition, is to be understood (Geist and Lambin, 2002).

The forest area in the Korean peninsula gradually decreased since the 1940s. Especially during the 1950–1953 Korean War forests of the peninsula were destroyed and degraded. Estimates of total denuded forestland of ROK amount to 686 thousand ha, or 10% of the total forestlands in 1956 (KFS, 1997: 193). Following the war, poverty accelerated the conversion of forestlands to agricultural lands for food production. For instance, agricultural lands increased from 1.97 million ha to 2.34 million ha between 1952 and 1968 (Bae et al., 2012: 200). Forest cover started to increase again since the late 1950s, but not much until the First and Second National Forest Development Plan (NFDPs, 1973–1978 and 1979–1987) were initiated. Under the NFDPs nearly 2 million has were reforested. While forest cover started to increase in the late 1950s, the growing stock started to increase only since the 1970s (Korea Forest Policy Society, 1975).

The success of ROK's reforestation policies has been promoted as an example of good forestry practice for developing countries (Noronha, 1981; Brown, 2008). Scholars have argued that national policies were a major driver of successful reforestation in ROK (Lee and Lee, 2005; Lee et al., 2010; Bae et al., 2012). The role of the government is crucial for implementing activities to avoid deforestation and achieve forest transition. Many studies assessing the Korean case, however, were limited to descriptive analysis only of the reforestation programs. They lack a theoretical analysis of the design and implementation of reforestation policies. This study attempts to understand reforestation policies using policy integration theory to reveal the inter-dependence between the forest sector and non-forest sector policies in the implementation of

* Corresponding author.
E-mail addresses: mpark@konkuk.ac.kr (M.S. Park), youn@snu.ac.kr (Y.-C. Youn).

http://dx.doi.org/10.1016/j.forpol.2016.05.019
1389-9341/

reforestation policies of ROK. We interpret the success of Korean reforestation as a result of the integration of policies across several policy sectors. We also argue that this approach can contribute to clarifying how policy design and implementation relate to forest transition and thus, how it can enrich forest transition theory.

2. Theoretical framework

2.1. Forest transition

The study of forest transition has developed since the 1990s, when it was defined as "the change from shrinking to expanding forests" (Mather, 1992) or "the change from contraction to expansion of national forest area" (Mather and Needle, 1998). Forest transition implies a turnaround in forest cover trends from net deforestation to net reforestation. The scholarship on forest transition concerns two important aspects. The study of forest cover change and the development of explanations of forest transition, often referred to as forest transition pathways. Rudel et al. (2005) and others before them initially suggested two, the economic development pathway and the forest scarcity pathway. Under the economic development pathway, agricultural lands revert to forests after farmers move to cities or engage in non-agricultural occupation. Under the forest scarcity path, the decline of forest cover causes the prices of forest products to increase. Efforts to produce and trade forest products contribute to forest cover increase. France (Mather and Needle, 1998) and Denmark (Mather et al., 1998) are cases that have experienced the development forest transition pathway while Switzerland (Mather and Fairbairn, 2000), India (Foster and Rosenzweig, 2003) and China (Lambin and Meyfroidt, 2010) belong to the forest scarcity transition pathway countries.

The two initially proposed pathways, however, do not explain all cases of forest transition. Lambin and Meyfroidt (2010) added three forest transition pathways, namely "state forest policy", "globalization", and "smallholder tree-based land use intensification" pathways. It can be argued that the economic development pathway and forest scarcity pathway occur inadvertently; and so does the globalization pathway. In the three cases, preconditions result in deforestation decline and reforestation increase. The other two pathways occur by advertent efforts with the intention to increase forest cover. In the case of smallholder tree-based land use intensification forest transition is caused by smallholders' reforestation activities for economic and ecological benefits. In the state policy pathway, forest transition is caused by policies implemented by a strong state. Our paper focuses on policy design as a driver of forest transition. State policy can be considered as an effective driver of forest recovery where deforestation prevails regardless of any preconditions and external environment.

2.2. Environmental policy integration

Deforestation is caused by several drivers (Geist and Lambin, 2002), including agricultural expansion, infrastructure expansion and wood extraction. This suggests that to overcome deforestation there is need to align policies in multiple sectors including forestry, agriculture, industry and energy. In policy sciences, policy integration is defined narrowly as "a process of incorporating certain concerns (e.g., environmental, social and economic) into an extant policy to produce an integrated policy" and broadly as "a process of uniting and harmonizing separate policies to produce an integrated and coherent policy system" (Briassoulis, 2005: 50). The concept of policy integration can be defined in comparison with policy coordination and cooperation. Meijers and Stead (2004) proposed a hierarchy of policy making of three levels: policy cooperation, coordination and integration. In the case of policy cooperation, different organizations work together to accomplish their individual goals. Policy coordination aims at adjusting policies to allow organizations to implement their own policies effectively. Policy integration is the most far-reaching level of policymaking, as organizations share common policy objectives and join together to create one common policy. Policy integration is the highest level of collaboration among organizations in policy making.

Environmental problems are complex in nature. Therefore, to handle the environmental problems, a comprehensive and systematical approach is required. The principle of environmental policy integration (EPI) emerged in the 1990s as a policy response to ensure sustainable development, systematically balancing economic, social and environmental concerns (Jordan and Lenschow, 2010). EPI is usually defined as the incorporation of environmental concerns and policy objectives in sectoral policies outside the traditional environmental policy domain (Runhaar et al., 2014). Under the concept of EPI, environmental policy should not be treated as a peripheral concern of policymakers, but should be regarded as a principal policy objective. The normative conceptualization of EPI as prioritizing environmental objectives has oftentimes led to tensions in practice (Jordan and Lenschow, 2010) because environmental concerns compete and conflict with other interests, especially economic interests.

Policy integration has a horizontal and a vertical dimension (Lafferty and Hovden, 2003). Horizontal policy integration, or sectoral integration, is the integration of policy making usually done by national governments and their composite departments and ministries. Vertical policy integration happens when vertically connected players work together closely within a sector coordinated by a particular government branch to implement objectives as central to the portfolio of the policy objectives of the governmental body. This study concentrates on horizontal policy integration among multiple sectors including forestry, energy and rural development.

Several scholars assessed EPI strategies; national plans (environmental plans and sustainable development plans), combination departments and green departments, green budgeting and green taxes were investigated (Runhaar et al., 2014). Mintcheva (2005) used management indicators and operational indicators to measure the integrated product policy performance. The degree of EPI was also measured, for instance by Lafferty and Hovden (2003) who evaluated policy integration using three levels distinctive levels: coordination, harmonization and prioritization. Kivimaa and Mickwitz (2006) used four criteria for EPI evaluating: inclusion of the environmental aspects, consistency of the environmental aspect in relation to other aspects, weighting of the environmental aspect with respect to other aspects and reporting of the environmental aspects. Considering the previous research on EPI, this study constructed an analytical framework to investigate policy integration strategies for reforestation in the multiple sectors in the ROK.

In the previous literature on policy analysis, the theory of policy integration has been applied to several policy domains such as food supply chains (Mintcheva, 2005) or regional development in Sweden (Storbjörk and Isaksson, 2014), technology policies of Finland (Mickwitz and Kivimaa, 2007) and ROK (Seong and Song, 2008), common agricultural policies of the European Union (Feindt, 2010), noise and spatial planning in the Netherlands (Weber and Driessen, 2010) and enterprise policies of the European Union (Hertin and Berkhout, 2003). Within this tradition, our study attempts to explain the contribution of integrated reforestation and avoidance of deforestation policies to forest transition in ROK.

3. Deforestation and forest transition in the Republic of Korea

3.1. Deforestation in the Republic of Korea

After the Korean War (1950–1953) ROK experienced severe deforestation and forest degradation. The Korean War from 1950 to 1953, caused rapid deforestation and forest degradation in nearly every corner of the country. In 1955 forest area excluding non-stock forestland was 35% of the national land area. In 1945, the total volume of growing stock of South Korean forests was estimated as 74 million m^3. After the

Please cite this article as: Park, M.S., Youn, Y.-C., Reforestation policy integration by the multiple sectors toward forest transition in the Republic of Korea, Forest Policy and Economics (2016), http://dx.doi.org/10.1016/j.forpol.2016.05.019