

# Internal Logic and Development Path of the “Two Mountains” Theory for Ecological Civilization Construction

Hu Yongjun<sup>1,2</sup>, Wu Jian<sup>2</sup>, Hu Ruishan<sup>3</sup>

1. Center for Strategic Studies of CAE, Beijing 100088, China

2. School of Environment, Tsinghua University, Beijing 100084, China

3. Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing 100101, China

**Abstract:** The “two mountains” theory (i.e., lucid waters and lush mountains as invaluable assets) is the core concept for ecological civilization construction in China, and is expected to guide the development of ecological civilization throughout the country for a long period of time. This paper aims to provide paths and models for ecological civilization construction and rural revitalization, and thus enrich the “two mountains” theory. The economic growth and externality theories are applied to analyze the core logic for realizing the value of ecological products and the internal logic of green growth, on which the fundamental routes for “two mountains” practices are proposed. The aforementioned core logic is to guide and standardize the ecologization of economic subjects at a micro level, and the main paths to achieve this include collecting ecological taxes and dues, building up an eco-market, paying ecological compensation, and establishing a green financial market. The internal logic of regional green growth is a positive cycle of transformation, coordination, and feedback between ecology and the “space–industry–main body”, and the main paths include space planning, ecological construction, ecological beautification, ecological industrialization, industrial ecologicalization, high-end industry, ecological culture, ecological system, and ecological technology. It is hoped that this study will provide a reference for top-level framework and development models for national ecological civilization construction and rural revitalization.

**Keywords:** ecological civilization construction; “two mountains” theory; logic; development paths

## 1 Introduction

In 2005, on his first visit to Anji in Huzhou, Xi Jinping, then party secretary of Zhejiang province, proposed a philosophy that “clear waters and green mountains are as valuable as mountains of gold and silver.” On August 24, 2005, Xi Jinping published *Lucid Water and Lush Mountains are also Invaluable Assets* in the Zhijiang Xinyu column of the *Zhejiang Daily*. [1] The article held that: clear water and green mountains can bring mountains of gold and silver, but mountains of gold and silver cannot bring clear water and green mountains. In other words, in a scenario where fish and bear paws cannot be gained altogether, we must learn to choose or discard, to do or not do according to the opportunity cost; find the right direction and create conditions for the choice, so that clear water and green mountains will constantly create mountains of gold and silver. If we can turn the advantages of an ecological environment into an advantage for

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**Corresponding author:** Hu Yongjun, jointly-supervised postdoctor of Chinese Academy of Engineering and Tsinghua University. Major research field is ecological civilization strategy. E-mail: hyhj18 @126.com

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ecological agriculture, industry, and tourism, among others, then the clear water and green mountains will become mountains of gold and silver. On March 8, 2006, Xi Jinping delivered a speech on the relationship between clear waters and green mountains in Renmin University of China, and proposed a theory about the relationship among “three stages”: in the first stage, clear water and green mountains are used for the exchange of gold and silver mountains, without regard for, or rarely considering, the resource bearing capacity; the second stage involves not only increasing mountains of gold and silver but also maintaining clear water and green mountains. At this time the contradiction between economic development and decreasing resources and environmental degradation begins to emerge. The third stage is the recognition that clear water and green mountains can bring gold and silver mountains continuously. These three stages are the process of the transformation of economic growth and the continuous improvement of the concept of development. On September 7, 2013, General Secretary Xi Jinping presented a speech at Nazarbayev University in Kazakhstan, where he stressed that “we need clean water and green mountains, and also mountains of gold and silver. It is better to have clear water and green mountains than to have mountains of gold and silver, and clear water and green mountains are as valuable as mountains of gold and silver.” [2]

Since then many scholars have successively conducted detailed and deep research on the “two mountains” theory and continue to elaborate on the ecological view, [3] guiding significance, [4] and dialectical relationship. [5] For example, Zhao Jianjun [3] believed that this development concept, from conflict to harmony between man and nature, points to the direction of development and promotes the realization of the dual value of humans and nature. Some practical studies on the “two mountains” theory [6–9] have described the form of the development model of the theory, including the Shaanxi Liuba model which promotes water and soil conservation and protects beautiful green waters and mountains; the Huzhou model of ecological development and increasing mountains of gold and silver; and the Saihanba model of turning a tree into a forest. However, in terms of the core logic and basic path of the “two mountains” theory to guide practice, relevant researches are still inadequate.

## 2 The internal logic analysis of “two mountains” theory

Regarding the internal logic of the “two mountains” theory, the key path is to realize the value of ecological products at the core of which is green development, in order that a good environment will become a growth point for people’s quality of life, a support point for sustainable and healthy social development, and a driving force for displaying a positive national image [10]. Thus, above all, the following two questions must be solved.

The first question is how to provide more high-quality ecological products, not only to increase material and spiritual wealth to meet people’s growing needs for a better life but also to provide more high-quality ecological products to meet people’s growing needs for a beautiful ecological environment [11]. The value and marketization of ecological products is key to expanding the production of ecological products and improving production efficiency.

The other question is how to solve bottlenecks and improve sustainable development. Since the reform and opening up, China’s economy has experienced rapid growth for over 30 years. Faced with the triple constraints of resource, environment, and market surplus, the traditional economic growth mode cannot be sustained. In order to realize green transformation and green development, it is necessary to take ecological capital as the foundation, human capital as the leading factor, physical capital as the support and condition, and social capital as the guarantee and assistance. With the benign interaction and coordination of various capital elements, the economic development model and people’s lifestyle should be transformed [12].

### 2.1 Value realization of the ecological products

Ecological products refer to natural products, such as fresh air, clean water, growing forests, and a suitable climate, which appear to bear no direct relationship with human labor [13]. They have the functions of maintaining ecological security, ensuring ecological regulation, and providing a good living environment. Ecological products have the following traits: public goods, that is, non-exclusive and non-competitive consumption; *in situ*, where some ecological products can only provide services in a certain geographical space; integrity, that is, to provide consumption space and develop leisure, entertainment, construction, and other associated functions; immeasurable consumption, such as fresh air and clear blue sky (where it is difficult to measure personal consumption); and value, which is multidimensional, with use and non-use value (such as existence value), and economic and non-economic value (such as cultural value).

Ecological products can be divided into three categories: (1) Public services with non-exclusive use which is provided

for the role of supporting life, such as air, water, forests, climate, and other pure natural elements; (2) ecological products which have a cost, that is, artificial natural elements formed after human labor processing, for example, vegetables, melons, and fruits, and ecological tourism; and finally, (3) ecological rights or contributions that are beneficial to ecology, such as carbon sinks created by afforestation, water purification through water and soil conservation, sewage charges, industrial greening, etc. This type of quasi-public goods establishes a market for trading through clearing property rights.

To realize the value of ecological products, their production should be promoted via pricing and trading. In fact, the price of ecological products is the monetary value which corresponds to the physical value. Using money to measure resource consumption, ecological cost, and ecological contribution helps people to correctly understand the cost of decrease in resources and environmental damage, along with the benefits of ecological protection. The multidimensional value of ecological products increases the difficulty in value accounting and evaluation. Marketization refers to using the market as the basic means of resource allocation to improve the efficiency and realize the maintenance and appreciation of ecological assets. [14] Valuation and marketization are facing difficulties, resource property rights are unclear, the degree of value realization is low, scientific evaluation is inadequate, the related main bodies lack motivation and enthusiasm, price distortions cause poor market channels, ecological contributions are unequal to ecological returns, and the uncertainty of recent damage and future benefits all impact the fair value of ecological products.

The core logic to solving the above problems lies in guiding and regulating the ecological behavior of economic subjects, which is divided into four links: ecological resources – ecological products – ecological assets – ecological capital (Fig. 1). The first step is to identify the key ecological production factors. The value of ecological products is derived from ecological production and human labor, and their non-substitution and economic scarcity are the prerequisites for their value generation [14]. An efficient market is the next step necessary for internalizing the externalities of ecological products, and depends on the correct and complete reflection of all information related to price; the effectiveness and legitimacy of the assets is the basis for the assets to become capital. Sustainable cash flow is necessary to maintain and increase value.

The virtuous cycle of ecological product value realization can be achieved when part of the ecological benefits can return again into the ecological environment protection and construction in the form of material, technology, capital, and labor [15].

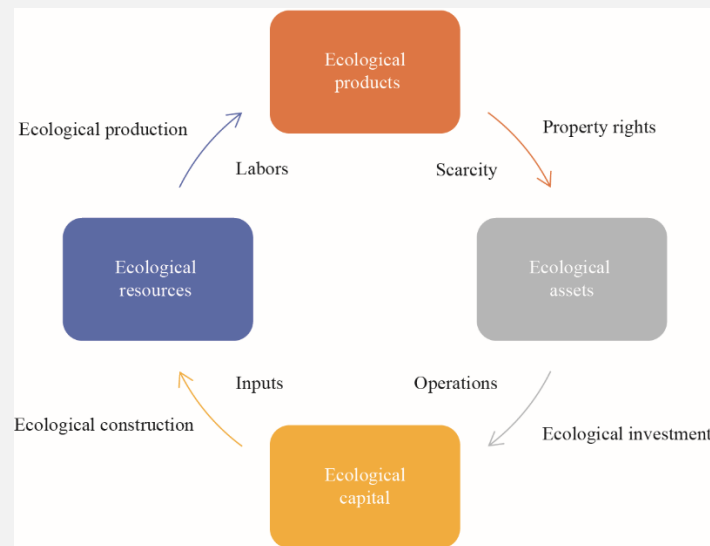


Fig. 1. The internal logic of the value realization of ecological products.

## 2.2 Regional green development

According to the traditional theory, the growth of regional economic depends on the main driving factors such as capital, technology, human resources, and institutions. Ecology and resources have spatial properties, and green growth depends on the conditions of industrial development. Green development has multidimensional values, divided into three dimensions: (1) Economic benefits, which are reflected in GDP growth, collective assets, income, etc.; (2) ecological benefits, including positive growth of ecological assets, environmental improvement, resource efficiency, carbon balance,

etc.; (3) social benefits, including zero waste, increasing residents’ satisfaction and employment, etc. The economic, social, and ecological benefits should be in harmony; if the three are in conflict, ecological and social benefits should be given priority.

For the synergy of multiple values, the three-dimensional analysis framework of “space–industry–main body” is constructed to deal with the coordination between ecology and industry, ecology and space, and ecology and people. The relationship between ecology and “space–industry–main body” can be divided into three stages: disconnection, harmony, and symbiosis stages. At the disconnection stage, material capital appreciation leads to a one-sided pursuit of material products, ignoring the existence and value of ecological capital, so the economic growth is unsustainable. At the harmony stage, more attention to ecological factors is paid while resource efficiency and environmental protection are taken into account in industrial structure and development, therefore, human capital plays a greater role in enhancing the sustainability of economic growth. Finally the symbiosis stage aims to preserve and increase ecological capital and focuses on the development of industries with low energy consumption, low pollution, and low carbon circulation. Ecological, physical, human, and social capital are all coordinated and promote each other, thus economic growth is strong and sustainable [16].

The internal logic of regional green development lies in the positive relationship between the value realization of ecological products and “space–industry–main body”, and the positive cycle of transformation, collaboration, and feedback. Space planning, ecological construction, and environmental beautification all contribute to shaping quality space by attracting people to quality space and promoting industrial development with the help of main bodies to accelerate industrial transformation and attract industrial investment. Only by these means can we promote regional development of industry, and thus improve strength, quality of life, and image in the region, accelerate the agglomeration of talent, capital, and industries, further nurture the ecology and achieve sustainable green growth (Fig. 2). The realization of the value of ecological products is the internal driving force of the interaction between ecology and space, industry and people.

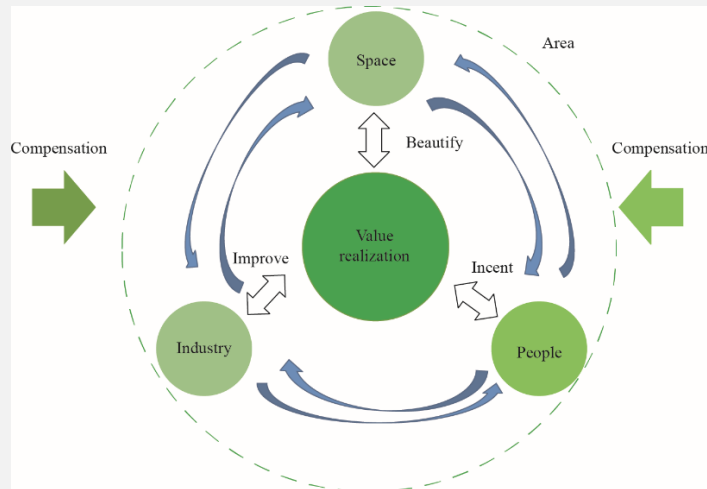


Fig. 2. The internal logic of regional green development.

### 3 The development path of “two mountains” theory

According to the internal logic of “two mountains” theory, the development paths are resolved (Fig. 3) as follows: the path of value realization of ecological products is explored using pricing and marketization; and the path of regional green development is identified from the relationship between ecology and “space–industry–main body”.

#### 3.1 The basic path to realizing the value of ecological products

In order to solve externalities in the process of pricing and marketization of ecological products, the basic approaches are ecological tax, market and compensation, and green finance. Generally speaking, ecological taxes and fees internalize the externality of ecological products by means of Pigovian tax; and the ecological market internalizes the externalities of ecological products by defining and trading Coase property rights. Ecological compensation internalizes the externalities of ecological products by means of economic incentives/subsidies; and green finance realizes the inter-

temporal and transregional value exchange by designing the charging mechanism agreed by both suppliers and consumers, thus internalizing the externality of ecological products.

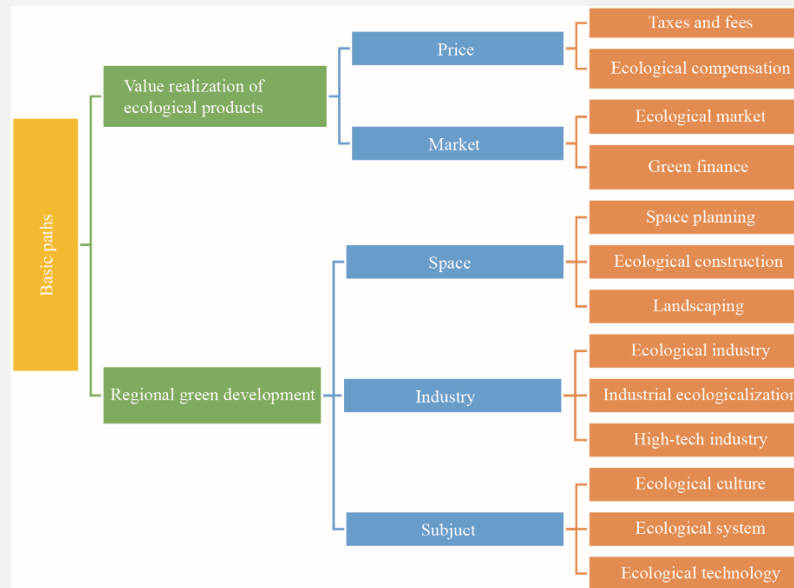


Fig. 3. The frame system of the “two mountains” path.

### 3.1.1 Ecological taxes and fees

Ecological taxes and fees include environmental taxes and resource fees.

As a tax on pollution sources, environmental taxes internalize the social costs of environmental pollution and ecological destruction into production costs and market prices and then allocate environmental resources through market mechanisms. For example, China levied an environmental tax from January 1, 2018. Japan, Sweden, and Costa Rica have carbon taxes on the use of fossil fuels, reflecting the value of carbon sinks.

Resource fees are subdivided into resource use and paid service fees, and economic compensation. Resource use fees embody the concept of paid use of resources, including land use right grant fees, water resource fees, and so on. Paid service fees refer to purchasing management services of the resources and environment damage or adverse effect, including channel cost of maintenance, marine waste dumping fees, compensation for the use of new land for construction, and fees for land disposal, land reclamation, effluent discharge, forestry protection, wildlife resources protection, new plant varieties protection, sewage disposal, water loss and soil erosion control, and afforestation. Economic compensation refers to the compensation paid to the resource owner for the possession or consumption of resources and links by resource developers and users. The implementation of the economic compensation system is conducive to curbing the misuse of resources, to reflect their scarcity and maximize the use of resources, and thus is one of the more effective means to regulate their use. Economic compensation includes farmland occupation tax, seedling subsidy, land expropriation compensation, mineral and water resources compensation, and so on.

### 3.1.2 Ecological compensation

In China, the government occasionally purchases ecological products on behalf of the public in a certain region or sometimes the whole country if necessary. There are two modes of ecological compensation: vertical and horizontal. The former refers to the mode of compensation from upper level government to lower level government or farmers. The latter refers to the financial transfer payment mode between parallel governments. If the upstream protects the ecosystem of the basin and provides clean and stable water flow for the downstream, the downstream governments should offer a compensation to the upstream governments.

### 3.1.3 Ecological market

(1) Make use of the existing commodity market. By changing the planting and production mode of such commodities as green food and environmentally friendly wood, the value of green ecology, environmental protection, and health will be more endowed on the intrinsic value of commodities. Green labeling of commodities is contributing to increased

commodity prices, with consumers paying directly for environmental services, and feedback incentives for green ecological planting and production methods is being achieved. (2) Make use of the existing property market. To coordinate and reflect the interests and responsibilities of all parties involved, such as water, emission, and energy rights trading, through the existing resource property rights trading market and the negotiated price mechanism. (3) Take advantage of the existing financial/capital markets. The use of green bonds, green funds, public-private partnership (PPP) funds and other green financial means to achieve market-oriented financing of the supply of ecological products has a good development prospect. (4) Create new markets. With the support of laws and regulations, a national unified carbon emission trading market will be established on the basis of the existing partial, decentralized, and individual carbon emission trading market, gradually developing from a single field to a multi-field trading market-oriented system.

### 3.1.4 Green finance

In financial management activities, attention should not just be paid to protecting the ecological environment and controlling environmental pollution but also to providing sustainable financial support for the construction of ecological civilization by guiding capital flow to the supply and demand sides of ecological products. This includes environmental finance and taxation policies in the form of green credit, securities, bonds, insurance, funds, PPP project financing, and PPP funds, etc. [17]

During the process of value realization, it is necessary to define and manage the boundary between government and the market (Table 1). China’s ecological product value mainly depends on the government’s dominant ecological compensation system. Along with further expansion for future ecological compensation, it will not suffice to rely on government alone to solve the sharp contradiction between economic development and ecological construction. Government purchasing ecological compensation will lead to greater fiscal pressure and the market system may have higher transaction costs. In general, ecological compensation is suitable for a large dispersion compensation subject, where property rights are fuzzy. The market approach is appropriate in cases of small-scale compensation subjects with clearly defined property rights. Government-led ecological compensation could also adopt market-oriented means to improve efficiency.

**Table 1.** The application scope of the basic path to realize the value of ecological products.

Basic paths	Scope	Examples
Ecological taxes and fees	Resources	The carbon sink of fossil fuels, rivers, forests, etc.
	Ecological products with a clear and easily measurable subject matter for taxation	Coal
Ecological market	Defined beneficiaries and providers, with a manageable number of participants	Transregional water rights trading
	More social subjects by creating a market for ecological products	Carbon trading market, wetland bank
Ecological compensation	More beneficiaries and high trading costs	Ecological compensation for the Yangtze river
	No specific beneficiaries	Biodiversity protection
Green finance	A reasonable charging mechanism	Polluters pay and beneficiary compensation
	Assets backed	Put idle assets to green use
	Credit mechanism or industrial chain extension	The combination of eco-agriculture and eco-tourism

## 3.2 Basic paths of regional green development

The goal of green and sustainable development is to realize the symbiotic relationship between ecology and “industry, city, and population.” The path is the interaction and integration of ecology and “space–industry–main body.”

### 3.2.1 Ecology and space

The synergy between ecology and space can be achieved by space planning of ecological construction and environmental beautification to accumulate ecological assets. Path planning is an important basis to hold the ecological baseline, optimize spatial structure, and strengthen space management. It predominantly includes planning for general land use, urban and rural zones, main functional areas, ecological function zones, ecological environment protection, urban development, rural revitalization strategy, and so on. Ecological construction, including ecological protection and

restoration, is generally provided for or purchased by the government to improve the quality of life by landscaping, and attract human capital agglomeration.

### 3.2.2 Ecology and industry

Through the development of ecological industry, synergy between ecology and industry is created with the ecological transformation of traditional industries and the development of green high-precision industry to increase the value of ecological assets. Ecological industry is founded on the biological production found in ecosystems and human production, such as ecological agriculture, tourism, fruit industry, health, and so on. Industrial ecologization is the transformation and upgrading of traditional industries. It follows the principles of ecology and economic law to guide industrial practice, and is an industrial development model that promotes a low carbon cycle in industrial production. Led by innovation, advanced, and sophisticated industries based on low energy consumption and low pollution are the engines of high-quality development.

### 3.2.3 Ecology and main body

Synergy between ecology and people can promote green consumption through pressure transmission, consciousness promotion, system construction, and technological innovation, thus driving green supply. After expanding green supply, green consumption will expand again. The main body of people includes the government, enterprises, and the public, and can also be regarded as government, market, and social mechanisms. They interact and are connected with each other and are the driving force of green growth. Factors such as green value proposition formed by ecological culture, the combined effect of government and market formed by ecological systems, and the industrial transformation brought by ecological technology, all take effect to improve industrial development, beautify space quality, and then attract highly educated talent, promote the overall quantity of human capital, and finally optimize human resource structure.

### 3.2.4 Ecology and “space–industry–main body”

The delicate green space is formed with spatial ecologization; green and high-quality development can be achieved by promoting ecological industry and supply side reform will be deepened through providing ecological products. The key to following a green growth path lies in identifying development bottlenecks, understanding the internal and external relations of development and the role of internal and external forces. There are various modes, including ecological construction, industry driving, multi-wheel driving, etc. Yanqing, an ecological zone, with the quality of the city combined with corridor advantages, attracted two world-class events, thus enhancing residents’ welfare and promoting the quality of green development. Nanping has built a green industry system driven by industry to promote green development. Anji, an ecological county, is driven by urban and rural as well as industrial development, etc. (Table 2).

## 4 Conclusions

The “two mountains” theory is both a cognition problem and an action problem. Guided by the thought process on the practice of “two mountains,” the author attempted to organize the logic and the path of the value realization of ecological products and regional green growth, so as to better guide practice of the theory.

(1) The core logic of realizing the value of ecological products is to guide and standardize the ecologization of economic subjects at a micro level, which is divided into four links: “ecological resources–ecological products–ecological assets–ecological capital.” The basic path to solving the externality internalization is ecological taxes and fees, ecological market and compensation, and green finance.

(2) The internal logic of regional green growth is a positive cycle of ecology and “space–industry–main body” for transformation, coordination, and feedback. The coordination of ecology and space, through the path of spatial planning, ecological construction, and environmental beautification achieves an accumulation of ecological assets. The synergy between ecology and industry, through the development of ecological industry, ecologization of traditional industries, and development of a green high-precision industry increases ecological assets. The synergy between ecology and people can promote green consumption through pressure transmission, consciousness promotion, system construction, and technological innovation, thus driving green supply and expanding green consumption.

The “two mountains” theory is the core concept of China’s ecological civilization construction. Using the theory to guide the practice, there are still many problems such as system mechanisms, key technology, policy guarantees, and subject incentives. In future, China should strengthen the summary and refinement of pilot models, take an active part in

improving the business environment, play a leading role in the market, and establish a system conducive to the virtuous circle around the ecology and “space–industry–main body.”

**Table 2.** Practice mode of “two mountains” theory.

Mode	Feature	Areas	Growth logic
Ecology-constructing	Soil and water conservation, and ecological afforestation, sand control, and economy	Liuba, Saihanba forest farm, Yili ecological demonstration area in Hangjinqi Kubuqi desert, Youyu, Qian Gorlos Mongol Autonomous County, Yuanyang Hani terrace heritage area in Honghe	External compensation
Industry driving	Building ecological counties and a green industrial system	Changting, Nanping, Huzhou, Quzhou, Anji, Lishui, Dongtou district in Wenzhou, Sihong, Jing’an, Dongyuan, Jiuzhaigou, Changjiang Li autonomous county, Wuyuan, Mengyin, Shiyuan, Tengchong city	Internal forces driving
Multi-wheel driving	Break traffic bottleneck, open market, build quality city, and develop ecological industry	Wudang, Yanqing district in Beijing, Yongning district in Nanning, Chishui	Internal and external forces driving together

*Note:* Collected from “two mountains” practice case set and network data.

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