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# Balancing Protection and Utilization in Overcoming Inaccessibility

## A Rural Development Model in a Mountainous Area of Turkey

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*There is a common belief that underdeveloped regions with major accessibility problems have insufficient resources for development. However, social and economic development in these regions can be realized through proper planning and resource management. A rural development project (RDP) focusing on social and economic development through protection of biodiversity in northern Turkey is a good example. Breeding of Caucasian queen bees (*Apis mellifera caucasica*), ecotourism, and eco-agriculture have been successful in this respect. The project received the "World Summit Business Award for Sustainable Development Partnership" from the United Nations Environment Program (UNEP) and the International Chamber of Commerce (ICC) at the World Summit on Sustainable Development 2002 in Johannesburg.*



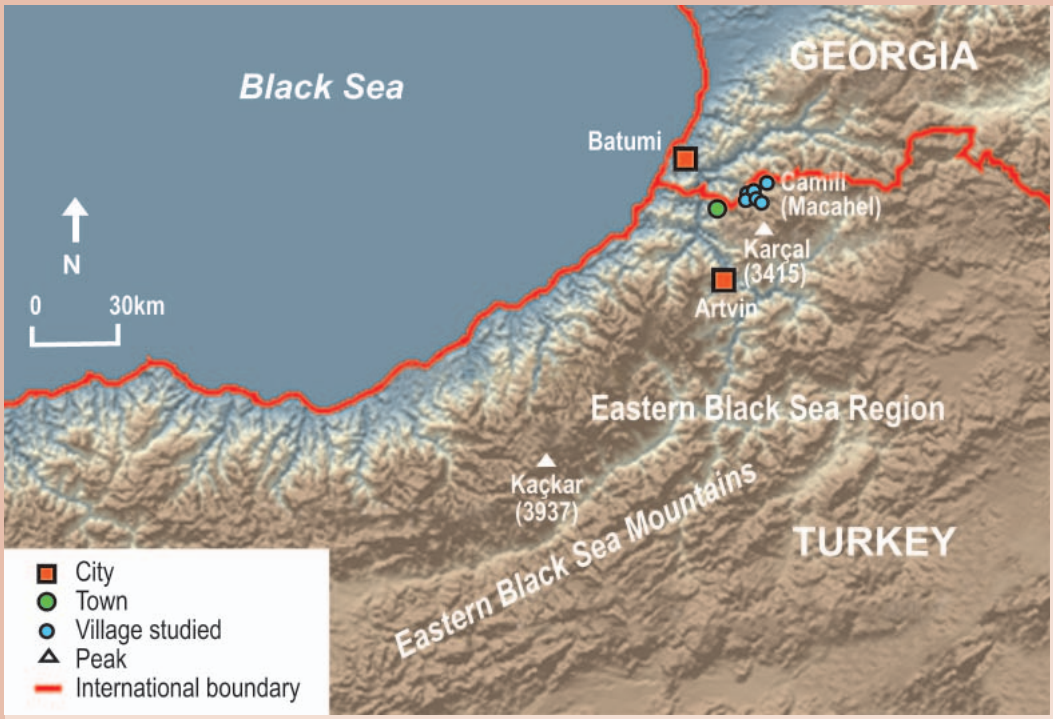



**FIGURE 1** Location of Camili (Macahel) in the Eastern Black Sea region. (Map by Mehmet Somuncu)

## The natural setting

The Eastern Black Sea region of Turkey (Figure 1), with a mountainous shoreline, covers 36,837 km$^2$ (4.7% of the country) and has a population of 3.2 million (2000 census). The highest peaks (above 3900 m) are in the middle part of this region. Annual rainfall in the coastal areas is good, ranging between 2000 and 2500 mm. The country's densest forests grow there. Natural features in the Eastern Black Sea region make for harsh conditions; in addition, the area is hard to access due to its distance from developed areas and insufficient infrastructure. Consequently, the rural areas in this region suffer from lack of adequate basic services such as communication, education, and healthcare.

The Macahel (Camili) river basin (27,000 ha, 400–3415 m) in the province of Artvin borders the state of Georgia on the eastern edge of the Black Sea region. With its Caucasian mixed temperate rain forest and high alpine meadows, the river basin is rich in biodiversity and features many endemic species. Villages at elevations of 500–1000 m in this geographically isolated basin are surrounded by natural and artificial barriers on all sides. Mount Karçal (3415 m) and neighboring peaks, as high as 2000 m, close off the basin on 3 sides. The only open end of the basin, which includes 6 villages, descends towards the west and is restricted by the border between Turkey and Georgia. Hence the Macahel area has

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**FIGURE 2** Before the rural development project (RDP), the local people earned their livelihood by clearing small areas in the forest for cultivation. (Photo by Mehmet Somuncu)

remained socially and economically underdeveloped (Figure 2).

## Inducing economic potential

To overcome inaccessibility in this region, a rural development project (RDP) was geared towards improving the local economy by creating new resources, providing basic social services, and increasing awareness among the local people about protecting biodiversity. Initiated in 1998, the project was implemented by the Turkish Foundation for Combating Soil Erosion, Reforestation and Protection of Natural Habitats (the TEMA Foundation), a nonprofit NGO in Turkey. Queen bee production, ecotourism, and production of goods such as hazelnuts, using eco-agricultural methods, were promoted as new sources of income for the region.

### A unique genetic capital

Beekeeping has been part of the economy for hundreds of years in the Macahel river basin. However, prior to the RDP it was carried out by traditional methods and only for honey production. With the initiation of the project, this has changed. Specialists from the TEMA Foundation and various Turkish universities determined that the bees in this river basin are highly productive Caucasian bees *(Apis mellifera caucasica)*, 1 of the 3 most acclaimed types of bees in the world. Furthermore, research showed that the genetic structure of the bees in the area is not altered in any way since no migrant beekeepers enter the area. The TEMA Foundation considered this an important factor in the success of the project. The Caucasian queen bee is essential for beekeeping in Turkey, since 61,000 tons of honey can be harvested from 4.1 million colonies; this ranks Turkey 4$^{th}$ in the world in harvesting of honey. The project is also important for ecological sustainability of the Caucasian bee species in Turkey and for regional biodiversity, as this species lives only in the Macahel region of Turkey and is genetically pure.

### Queen bee production

On initiation of the project in 1998, 13 volunteers among locals in the river basin were trained in queen bee production for 3 months. These producers then received subsidies to set up queen-bee production enterprises (Figure 3). Following this initial stage, the Macahel Bee-Keeping Company was established through a partnership between the TEMA Foundation and local people to supervise the expenses, production procedures, and marketing of queen bees in production operations. As a result of these efforts, the number of products and queen bees has been on the rise since 1999. In 2000, 25 people from the river basin were trained in queen bee production.

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**FIGURE 3** The breeding area of a purebred queen bee production enterprise. (Photo by the TEMA Foundation)

In 2002 the TEMA Foundation set up a training and research center in the central village of Camili. The center is the most significant investment in training for beekeeping in Turkey. To increase efficiency, a group of operators consisting of local women was trained in artificial insemination of bees and given a chance to work in the laboratories.

As a result of successful management of queen bee production in 2003, 23 families earned an income of US$ 99,165 from the production of 6010 queen bees. In 2004, the same operations are expected to earn US$ 136,000. Income per family, US$ 700–1000 annually prior to the RDP, increased by a factor of 5 or 6 for individuals involved in queen bee production.

The younger generation of beekeepers, some of whom are women, are more eager to participate. Melahat Gülbin, 37, is one of the female producers in the river basin. She took up beekeeping after her training in queen bee production in 2001. Mrs. Gülbin produced 300 queen bees in 2001 and earned US$ 4410, and in 2003 she produced 750 queen bees, yielding an income of US$ 12,375. In addition to queen bee production, Mrs. Gülbin has been working in ecotourism. Thus, in recent years, she has been able to significantly increase the income level of her household (Figure 4).

**FIGURE 4** Beekeeper Melahat Gülbin checks the colonies of her operation with a project expert. (Photo by Mehmet Somuncu)



At the request of the Macahel Bee-Keeping Company, a breed of bees known as "Artvin–Caucasian mixed breed," resulting from cross-breeding of pure Caucasian bees with other breeds in the Eastern Black Sea region, has been produced and marketed outside the river basin since 2001. In 2003, the company earned US$ 57,189 from this activity, and has set a production goal of 8000 queen bees and an income goal of US$ 136,000 for 2004. Hence, as projected from the inception of the RDP, queen bee production has become common throughout the Eastern Black Sea region of Turkey. Furthermore, the honey produced is currently being marketed by both the TEMA Foundation and producers in large Turkish cities.

### Ecotourism

The natural and cultural features of the Macahel area are an important tourism

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**FIGURE 5** The local people of the Macahel area earn additional income from ecotourism. One of the services offered is serving food prepared by local women which is also for sale. (Photo by Mehmet Somuncu)



resource. The project therefore promoted ecotourism as another source of revenue for the region. Villagers have been informed about ecotourism at periodic meetings. Two houses were converted into small hotels; walking and excursion trails, accommodation sites, and shelters and mobile huts were identified. Two forest houses were rehabilitated to provide accommodation for 25 people. One summer pasture house was built and another rented, and a tourism agency was set up. Guides, accommodation facility managers, and workers were selected from the local population and trained for jobs in tourism. Currently, all the needs of those participating in nature excursions are met by local people, and the resulting revenue is distributed to villagers. In 2003, the travel agency organized 15 tour packages to the region, in which 356 people participated. The agency offered 18 tour packages in 2004.

## Cooperation to overcome inaccessibility and protect biodiversity

Implementation of the project required the cooperation of the social actors concerned with the affairs of the region as well as the cooperation of local people. To this end, the TEMA Foundation sought the cooperation of the Ministry of Environment and Forestry, the government of Artvin province, universities, NGOs, and local leaders. Cooperation laid the ground for uniting various social actors to achieve the same goal.

In order to prevent genetic pollution of the bee species in the river basin, the government of Artvin province banned bees from other areas. The Ministry of Environment and Forestry facilitated preparation of accommodation for ecotourists. Academics conducted research on Caucasian bees and the crops that can be produced by eco-agricultural methods in the river basin. NGOs, on the other hand, made local people aware of the importance and content of the project by taking advantage of their strong relationships in society. Relations with the local people were established through the efforts of villagers in leadership positions.

## Ensuring access to a border area

Since the area is a "1st degree security zone" bordering the state of Georgia, visitors are allowed to enter only with the permission of law enforcement officials. In order to facilitate ecotourism and support local people, procedures for securing permission to enter the area were simplified for visitors. The administrators of the TEMA Foundation and beekeeping specialists periodically visited the area and held meetings with beekeepers to discuss the developments and problems encountered in project implementation.

Because the river basin is divided into two sections by a political border, and one of its sections is within the borders of the state of Georgia, administrators and beekeepers of the section in Georgia were contacted to prevent genetic pollution of the bee species and exchange information. Booklets, brochures, and posters were published to inform the beekeepers and advertise the queen bees produced countrywide. The "Macahel Documentary," which presents the natural and cultural abundance of the area, was shown at the 6th Istanbul International Environmental Film Festival.

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## Community benefits

The people of the area appreciate the benefits of the project, since the RDP has brought economic vitality to 6 villages. Local people express an enhanced sense of confidence and feel less isolated from the rest of the country than previously. The overcoming of transportation problems in the region to facilitate project goals also increased local confidence in the project. Directly or indirectly, the project has provided the following benefits to the area:

- Introduction of modern methods of beekeeping that do not require big investments and large areas, significantly increasing the income of local people.
- Additional income for the local people through ecotourism.
- Better integration of inaccessible areas in the region into the national economy through queen bee production, honey trade, and ecotourism. More producers and higher beekeeping production rates, and greater income from ecotourism will facilitate integration of the region into the national economy (Figure 5).
- Currently 23 families residing in the river basin are involved in queen bee production, and the number of those requesting training and technical support has been on the rise. NGOs and experts in the river basin claim that the numbers will double within a few years. New sources of income have reduced the rate of migration from the area. Outmigration is expected to end as living conditions continue to improve.
- Awareness about environmental protection has increased since the project began. People in the region have also realized that their potential for better income is linked to protection of the environment. This is significant in terms of environmental sustainability.
- The 60-km road that connects the area to the nearest town is blocked by heavy snowfall for 6 months starting in November, hindering transportation. Transfer of medical emergency cases to the nearest center has been almost impossible. Thanks to a snowmobile purchased by the TEMA Foundation for use in emergencies and to military helicopters, this problem has been partially resolved on a short-term basis for the last 3 years. The most remarkable improvement in transportation has been the acceleration of road construction between the river basin and the town of Borçka. Gradually, this will help overcome inaccessibility.

In addition to benefits for the Macahel river basin, the project has also provided benefits to the country:

- Except in warmer regions of Turkey, the use of Caucasian queen bees in colonies will significantly increase the efficiency of honey production.
- The project will promote sustainable management of *Apis mellifera caucasica* in Turkey.
- Ecotourism can be a precedent, primarily for the Eastern Black Sea region where the tourism sector is not developed, and for Turkey generally, where mass tourism prevails.
- The RDP project approach has been widely adopted by other organizations, including governmental institutions and NGOs.

## Conclusions

This project has shown that natural resources in the remote mountainous northern regions of Turkey can make a significant contribution to social and economic development, and that development can be sustained by protecting the natural resources of the region. This also emphasizes the importance of sustainable development in overcoming inaccessibility. Indeed, sustainable environmental, economic, and social development is gradually being achieved. The RDP has also demonstrated that limited initial subsidies and participation by various social actors can bring about development. The rural areas of the Eastern Black Sea region have similar environmental and social conditions. Underdevelopment in these areas can be overcome through proper management of resources with a similar approach. This approach can also be applied in mountain areas with comparable problems.

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