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## **Evaluation of the Effects of The Department of Forest-Village Relations (DoFVR) Firewood Reduction Projects on Climate Change**

Ufuk COŞGUN

Forestry Policy and Management Department, Faculty of Forestry

Karabük University

[ufukcosgun@karabuk.edu.tr](mailto:ufukcosgun@karabuk.edu.tr)

# Introduction



One of the most important global changes in the atmospheric layer closest to the surface is global climate change due to the increase of CO<sub>2</sub>. Climate change; In addition to the natural variability of climate, it is defined as the change of climate in certain time periods with the direct or indirect effect of human activities. The process of combating climate change; human impact is the key criterion in terms of release, reduction and adaptation activities



# Introduction



Forests; provides significant solutions in terms of adaptation and reduction in the fight against climate change.

Sustainably managed forests, providing many ecosystem services besides carbon sequestration, increase the durability of communities and ecosystems

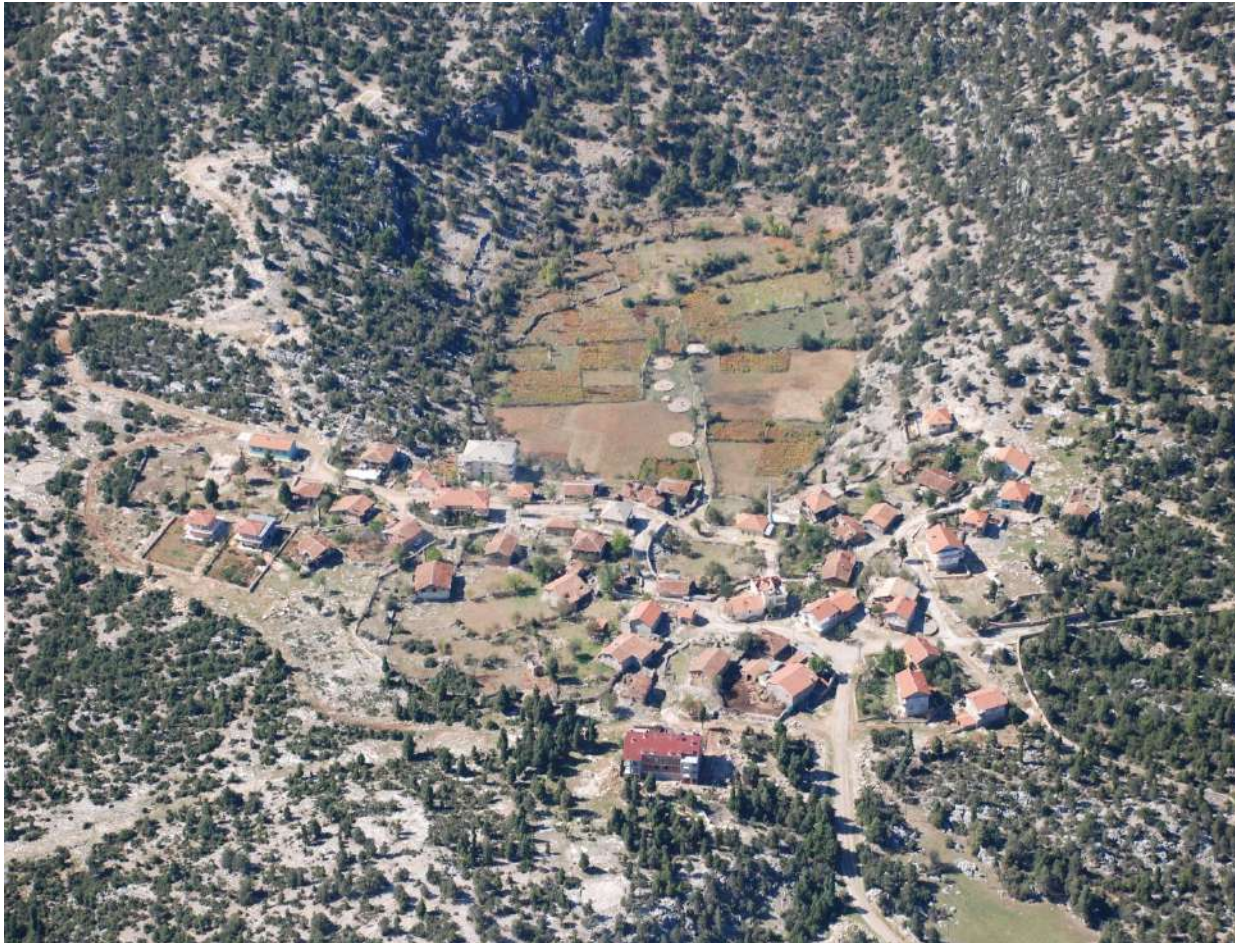




# Introduction



There are approximately 7.2 million forest villagers in our country. One of every three villagers living in rural areas is a forest villager.



The natural habitats of the forest villagers are intertwined with the forest areas and all activities of the forest villagers to benefit from forests affect the forest areas. This formation in the fight against climate change; It adds an important dimension to the key human and nature interaction



# Objective



The aim of this study is to determine the effects of social projects implemented by The Department of Forest-Village Relations (DoFVR) in order to reduce the use of firewood on wood consumption levels and thus to determine the effects and contribution of adaptation and reduction, carbon sequestration in terms of combating climate change





# Material and Method



The Department of Forest-Village Relations (DoFVR) was established to reduce the negative impact of forest villagers on forest areas and to improve economic losses due to forestry activities. For this reason, it has implemented individual and cooperative credit project applications for social and economic purposes. One of the applications in recent years has been the creation of supported projects to reduce the use of firewood. Examples of these projects; Solar energy systems, heating and cooking stove use projects.



# Material and Method



The determine the effects of savings on carbon accumulation through the implementation of DoFVR's projects to reduce fuel consumption; consist evaluation of the data obtained from three stages.



# Material and Method



The first of these;  
Determination of the effects of firewood savings on carbon consumption and accumulation with solar water heating project in forest villages of Western Mediterranean Region (forest villages of Antalya, Burdur and Isparta ).





# Material and Method



The second stage; The aim of this study is to determine the effects of firewood savings on carbon consumption and accumulation with solar water heating, sheathing of buildings (Thermal Insulation) and cooking stove projects in forest villages of Western Black Sea Region (Zonguldak, Bartın and Karabük) .



# Material and Method



In the third stage; With the help of Western Mediterranean and Western Black Sea Region data; The aim of this study is to determine the effects of firewood savings on carbon consumption and accumulation as a result of Solar Energy, Heating, , Sheathing of Buildings (Thermal Insulation) and Cooking Stove Projects in forest villages of our country.



**2018 poverty threshold 5.416 TL**

**2018 hunger threshold 1.663 TL**



<b>Savings</b> <i>(Sağlanan Tasarruflar)</i>	<b>Heating and cooking stove use projects.</b> <i>(Kuzineli Soba Projesi)</i>	<b>Sheathing Projects</b> <i>(Monlama Projesi)</i>	<b>Solar Energy Projects</b>
<b>Average monthly income of the family</b> <b>(1 ABD \$ = 4,2 TL)</b> <i>(Ailenin aylık ortalama geliri)</i>	2.045,24 TL 487 \$	2.057,00 TL 490\$	1.902,00 TL 453\$
<b>Average annual consumption of firewood in families (stere)</b> <i>Ailelerde ortalama yıllık yakacak odun tüketimi (ster)</i>	16,38	11,53	18,16
<b>Average annual consumption of coal in families (ton)</b> <i>(Ailelerde ortalama yıllık kömür tüketimi)</i>	2,14	2,33	1,8

2018 poverty threshold 5.416 TL

2018 hunger threshold 1.663 TL



Savings	Heating and cooking stove use projects. (Kuzineli Soba Projesi)	Sheathing Projects (Monlama Projesi)	Solar Energy Projects
<b><u>Annual amount of firewood savings after project application (%)</u></b> <b><u>Proje uygulamasıyla sağlanan ortalama yakacak odun tasarruf miktarı (%)</u></b>	<b><u>27,86</u></b>	<b><u>53,63</u></b>	<b><u>28,4</u></b>
<b>Annual amount of firewood savings per household (1 ABD \$ = 4,2 TL)</b> <b>Hane başına yıllık yakacak odun tasarruf miktarı (TL)</b>	<b><u>170 \$</u></b>	<b><u>236 \$</u></b>	<b><u>197 \$</u></b>
<b>Annual amount of firewood savings per household (stere)</b> <b>Hane başına Yıllık yakacak odun tasarruf miktarı (ster)</b>	<b>4,56</b>	<b>6,19</b>	<b>5,16</b>
<b>Cost/Benefit ratio for Project</b> <b>(F/M Oranı (Hesaplanan))</b>	1,41	1,44	1,72
<b>Real cost/benefit ratio after project application</b> <b>(F/M Oranı /Gerçekleşen)</b>	0,92 (%35 düşük)	1,28 (%23 düşük)	1,82



# Results and Discussion



**24 aileye kaloriferli soba projesi uygulanmış ve yıllık ortalama 4.176 ABD \$'ı tasarruf sağlanmıştır.**

**Mantolama proje desteği 133 aileye uygulanmış ve yıllık ortalama 31.388 ABD \$'ı tasarruf elde edilmiştir.**

**GES uygulaması 2.590 aileye uygulanmış ve yıllık ortalama 510.230 ABD \$'ı tasarruf sağlanmıştır.**

**ORKÖY Şube Müdürlüğü uygulamaları ile yıllık ortalama 545.794 ABD \$'ı ekonomik kazanç sağlamıştır.**

# Results and Discussion



According to 2018 data of General Directorate of Forestry; There are 6,827,500 forest villagers

The average number of households in forest villages is 1.288.208.



# Results and Discussion



In Turkey, the average annual consumption of firewood in the forest villages were found to be 11.77 stere (6.47 m<sup>3</sup>)





The average annual consumption of firewood in forest villages in Turkey is 8,334,706 m<sup>3</sup> .



# Results and Discussion



Due to the annual amount of firewood consumed by forest villagers living in forest villages in Turkey, there is a decrease of 3.032.706 tons / year from the existing carbon stock in the forest.

CO<sub>2</sub> equivalent amount is 11.131.096 tons / year

# Results and Discussion



In forest villages of Turkey; the amount of firewood savings achieved by projects implemented by DoFVR to reduce the consumption of firewood; annual average is 4.41 (2.43 m<sup>3</sup>).



# Results and Discussion



In the forest villages in our country; With the projects aimed at reducing the consumption of firewood implemented by DoFVR, the average amount of firewood saved is 3.130.345 m<sup>3</sup> per year.

# Results and Discussion



To reduce the consumption of firewood through projects aimed at reducing the consumption of firewood.

**ANNUAL CONTRIBUTION  
TO CARBON STOCKS  
1.14 million tons / year**



# CONCLUSION



There are significant differences between statistics and field study data in terms of firewood consumption.

# CONCLUSION



There have not been enough studies examining the efficiency and efficiency levels of the project implementations aimed at reducing firewood apply by DoFVR.



# CONCLUSION



The average annual consumption of firewood for families in forest villages varies by region. Therefore, the impacts of the implemented projects vary. While the average annual amount of firewood per household is 5.75 m<sup>3</sup> for forest villages of Western Mediterranean Region, this amount is 7.2 m<sup>3</sup> for forest villages of Western Black Sea Region.

# CONCLUSION



The effect of the amount of wood used for fuel by forest villagers on the reduction of carbon stock in forests; annual 3 million tons / year; The contributions of DoFVR firewood reduction projects have been determined as approximately 1.14 million tons / year.



# CONCLUSION



The CO<sub>2</sub> equivalent contribution of the projects aiming to reduce the consumption of firewood implemented by DoFVR in forest villages was determined as 4.2 million tons / year on average.



Thank you for your attention...

