



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



www.eusifleg.org

Program is funded by the Austrian Development Agency and the Austrian Development Cooperation
Cooperates with the World Bank Group and the UN Women

“FINGERPRINTING” NATURE-DEPENDENT COMMUNITIES

A flexible framework for linking Earth Observation and ground-based survey data to quantify community dependence

Franziska Albrecht¹, Richard Aishton², Andrey S. Zaytsev^{2,3}, Christian Hoffmann^h



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EUROPEAN FOREST LAW
EUROPEAN MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD · IDA · IFC · MIGA



www.eastfleg.org

Program is funded by the Austrian Development Agency (ADA) and the International Development Cooperation Unit (IDU) of the Swedish International Development Cooperation Agency (Sida).
Cooperates with the German Development Cooperation (GIZ), the World Bank Group and the UN Women.





EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
EASY COUNTRIES FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.fleg.gov.am

Program is funded by the Austrian Development Agency
Cooperates with the Ministry of Environmental Protection and Forestry of Armenia



EUROPEAN NEIGHBOURHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



www.enpi-fleg.org

Program is funded by the Austrian Development Agency and the Austrian Development Cooperation
Cooperates with the German Development Cooperation, the World Bank Group and the UN Women

Define nature- dependent communities

- Focus region:
 - 36 selected communities across the ENPI East countries and Russia
 - Community selection by field consultants and FLEG Country Program Coordinators
 -



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD · IDA · IFC · MIGA



www.eastfleg.org

Program is funded by the Austrian Development Agency (ADA) in cooperation with the German Development Cooperation (GIZ).
Cooperation with the World Bank Group and the UN Women.



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
FOREST COUNTRIES FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



www.eusifleg.org

Program is funded by the Austrian Development Agency and the Austrian Development Cooperation
Cooperates with the World Bank Group and the UN Women

Derive EO-based ecosystem profile

- 76 EO-based variables
- 6 Parameter groups:
 - Landscape characteristics
 - Villages structure
 - Infrastructure
 - Agriculture
 - Forest
 - Hazards
- 10x10km grid (100km²) with grid size of



EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD · IDA · IFC · MIGA



www.eastfleg.org

Program is funded by the Austrian Development Agency
Cooperates with the German Development Cooperation (GIZ) and the World Bank Group and the UN Women



EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
EASY COUNTRIES FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.eastfleg.org

Program is funded by the Austrian Development Agency
Cooperates with the Ministry of Environmental Protection and Forestry of Armenia



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
FOREST LAW ENFORCEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



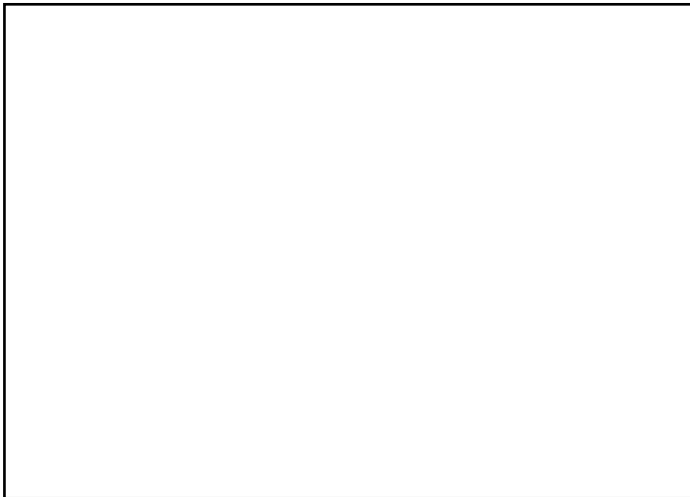
www.fleg.gov.ge

Program is funded by the Austrian Development Agency and the Austrian Development Cooperation
Cooperates with the World Bank, UN Women and the UN Women

Forest Community Fingerprint

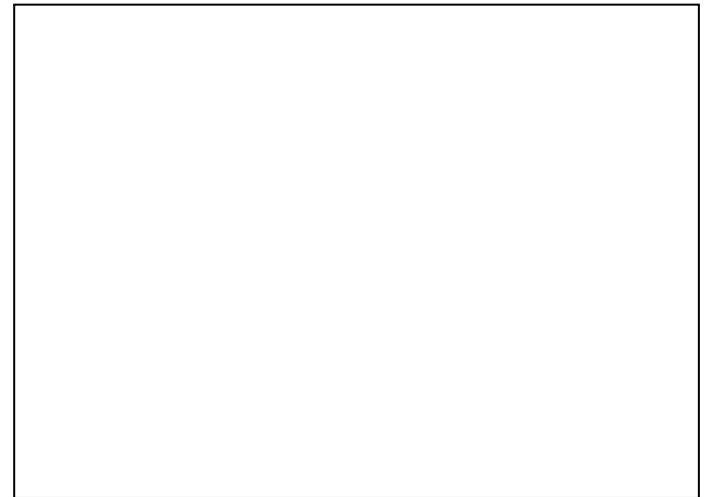
- Spider Web Diagrams

Community at risk



Tsevlo- Russia

Stable community



Sakdrioni- Georgia



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EASY COUNTRIES FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.eastfleg.org

Program is funded by the Austrian Development Agency
Cooperates with the Ministry of Environmental Protection and Forestry of Armenia



EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
EASY COUNTRIES FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.fleg.gov.am

Program is funded by the Austrian Development Agency (ADA) and the International Development Cooperation
Cooperation is supported by the World Bank Group and the UN Women (UNWOMEN)



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EUROPEAN FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



www.fleg.eu

Program is funded by the Austrian Development Agency and the Austrian Development Cooperation
Cooperates with the World Bank Group and the UN Women

Establish statistical link between HHs and EO data

- **Step 1: General Linear Modelling (GLM)**

 - Extracts the most significant drivers among EO parameters

 - Assesses percentage of variance explained these drivers



EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD · IDA · IFC · MIGA



www.eastfleg.org

Program is funded by the Austrian Development Agency
Cooperates with the German Development Cooperation (GIZ) and the World Bank Group and the UN Women



EUROPEAN NEIGHBOURHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD · IDA · IFC · MIGA



www.eastfleg.org

Program is funded by the Austrian Development Agency
Cooperates with the World Bank Group and the UN/FAO

Establish statistical link between HHs and EO data



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA

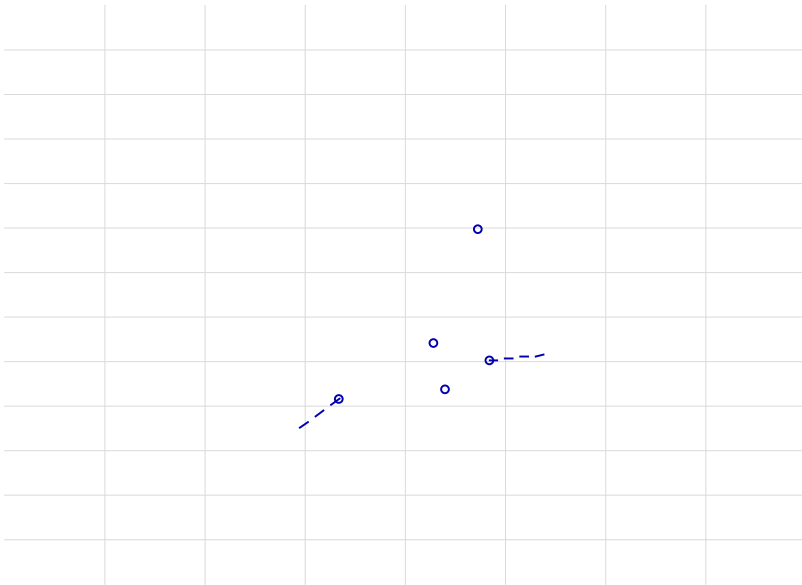


www.eastfleg.org

Program is funded by the Austrian Development Agency and the Austrian Development Cooperation
Cooperation with the World Bank Group and the UN Women

Establish statistical link between HHs and EO data

- Scatterplot for FCF and EO based ecosystem profile show similar patterns





EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
FOREST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA

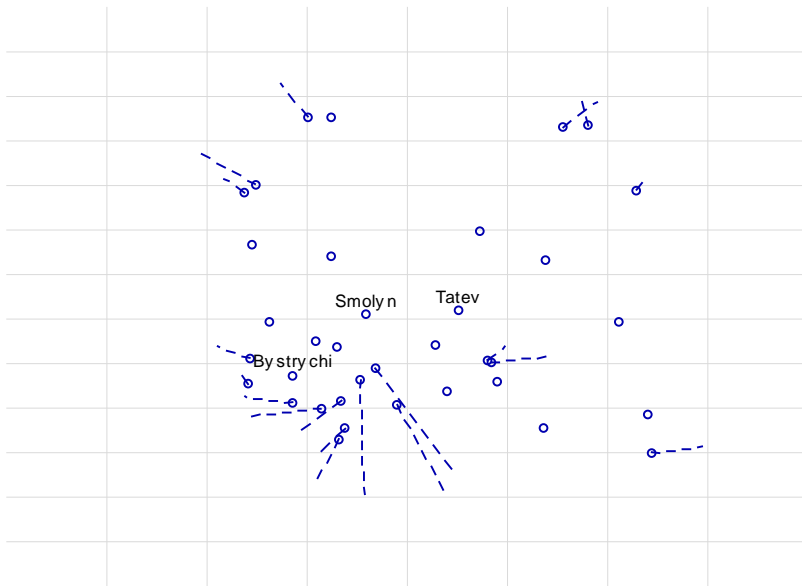


www.eastfleg.org

Program is funded by the Austrian Development Agency and the Austrian Development Cooperation
Cooperates with the German Development Cooperation, the World Bank Group and the UN Women

Establish statistical link between HHs and EO data

- Scatterplot for FCF and EO based ecosystem profile show similar patterns



Establish statistical link between HHs and EO data

- Comparing the FCF assessment and EO-PCA results
 - 31 out of 36 communities align

		EO-PCA	
		at risk	stable
FCF-PCA	at risk	Artani, Bystrychj Danachj Gubichj Kolodiazne Krasnyi Luch, Mukhen, Novaya Buda, Rudnya Viktorinskaya Sikachi Alan, Sita, Strychava, Tsevlq Volchno Burlinskoe, Yukhari Chardakhlar Zahorb	Halidzor Seredkevichy Smolya Tyumentsevo, Yeltsovka
	stable		Aknaghbyur Alexandru cel Bun, Bezhanitsy Borceag, Chaban Cioresti, Gargar Haghartsin, Ivanova Sloboda, Sakdrioni, Tatey Yeghegnut Yukhari Talq Zaridzeebi, Zhebota



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EASY COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.eastfleg.org

Program is funded by the Austrian Development Agency (ADA) and the International Development Cooperation
Cooperates with the Ministry of Environmental Protection and Forestry (MOPF)



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.fleg.gov.am

Program is funded by the Austrian Development Agency (ADA) and the International Development Cooperation
Cooperates with the Ministry of Environmental Protection and Forestry (MAGN) and WWF



EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.fleg.gov.ge

Program is funded by the Austrian Development Agency (ADA) and the International Development Cooperation
Cooperation is implemented with the World Bank Group and the UN Women (UNWOMEN)



EUROPEAN NEIGHBOHOOD POLICY
PARTNERSHIP INSTRUMENT
FOREST COUNTRIES FOREST LAW
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



www.eusifleg.org

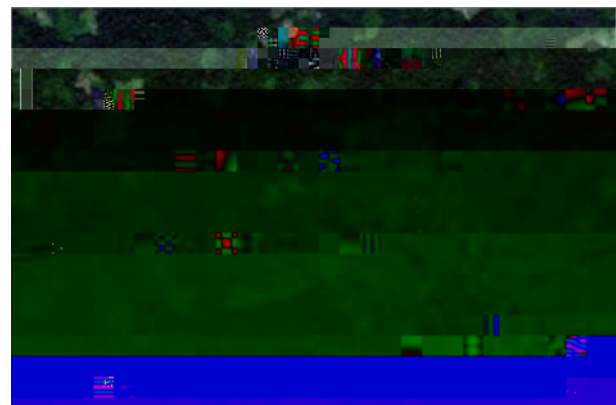
Program is funded by the Austrian Development Agency
Cooperates with the German Development Cooperation (GIZ), the World Bank Group and the UN Women

In a nutshell

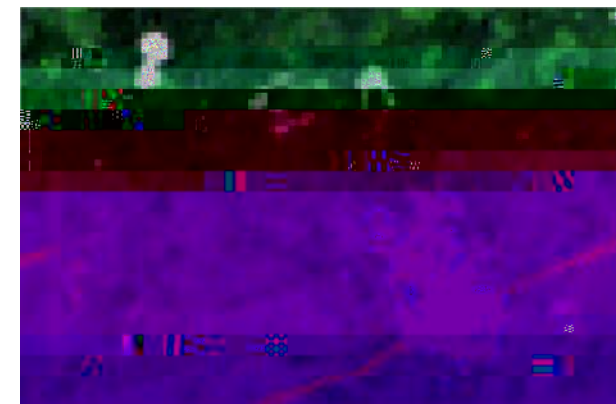
4) Accuracy can be improved by using high resolution Data



WorldView2 – 0,5m



RapidEye- 5m



Landsat- 30m



EUROPEAN NEIGHBORHOOD AND
PARTNERSHIP INSTRUMENT
EAST EUROPEAN FOREST LAW,
MANAGEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



THE WORLD BANK
IBRD • IDA



www.fleg.gov.am

Program is funded by the Austrian Development Agency
Cooperates with the Ministry of Environmental Protection and Forestry of Armenia



EUROPEAN NEIGHBOHOOD AND
PARTNERSHIP INSTRUMENT
EAST COUNTRIES FREE TRADE
AGREEMENT AND GOVERNANCE
(FLEG) II PROGRAM COMPLEMENTARY
MEASURES FOR ARMENIA & GEORGIA



www.eastfleg.org

Program is funded by the Austrian Development Agency
Cooperates with the International World Bank Group and the UN Women

Thank you!

