



International Symposium on Wild Rivers, 2019

The role of the geomorphological features to the ecological services of the Vjosa river: the contradictory actual use of the resource “river”

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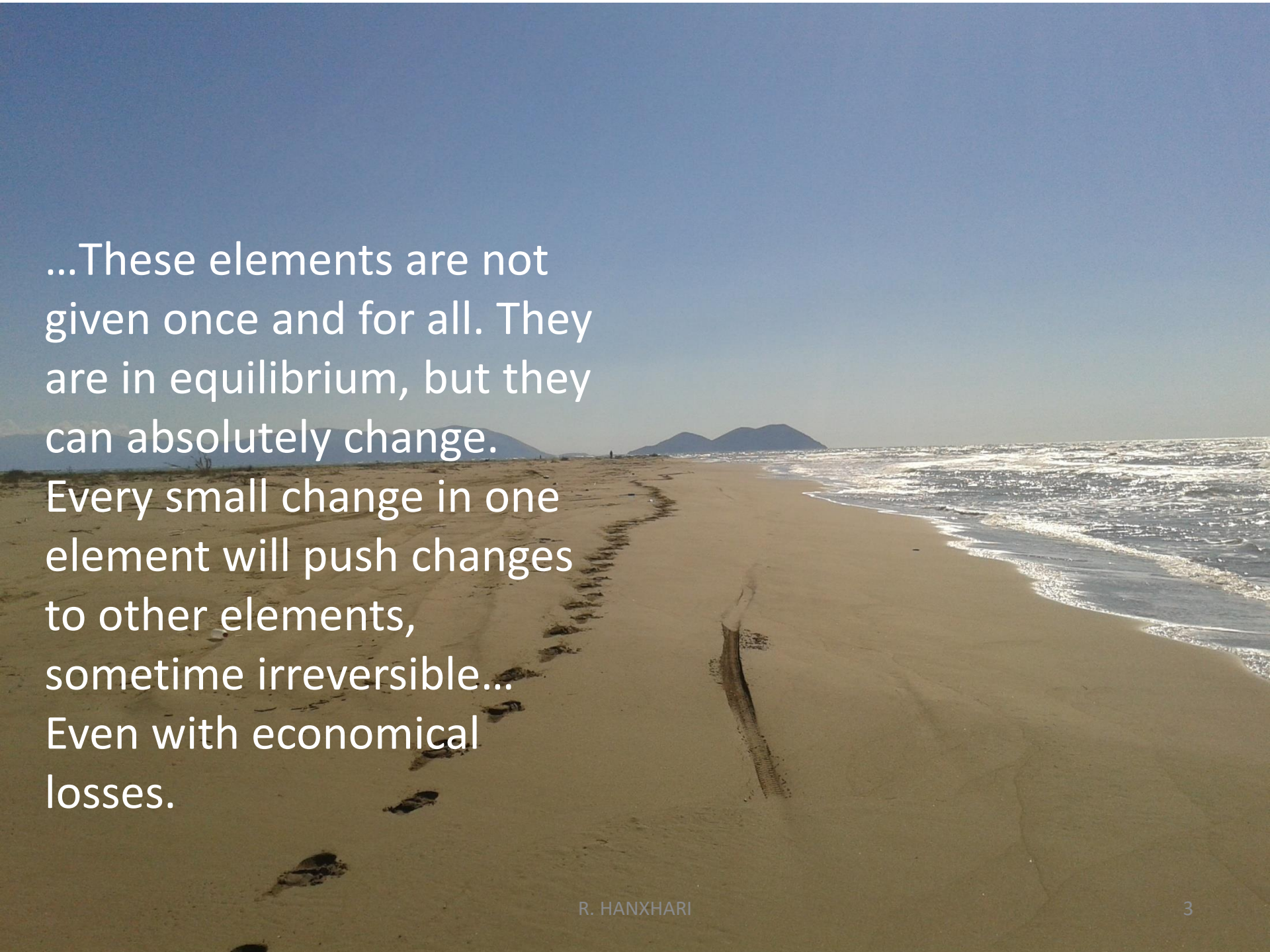
Prof. Dr. Gjovalin Gruda, University of Tirana

Prof. Dr. Merita Dollma, University of Tirana

18.10.2019, Tirane

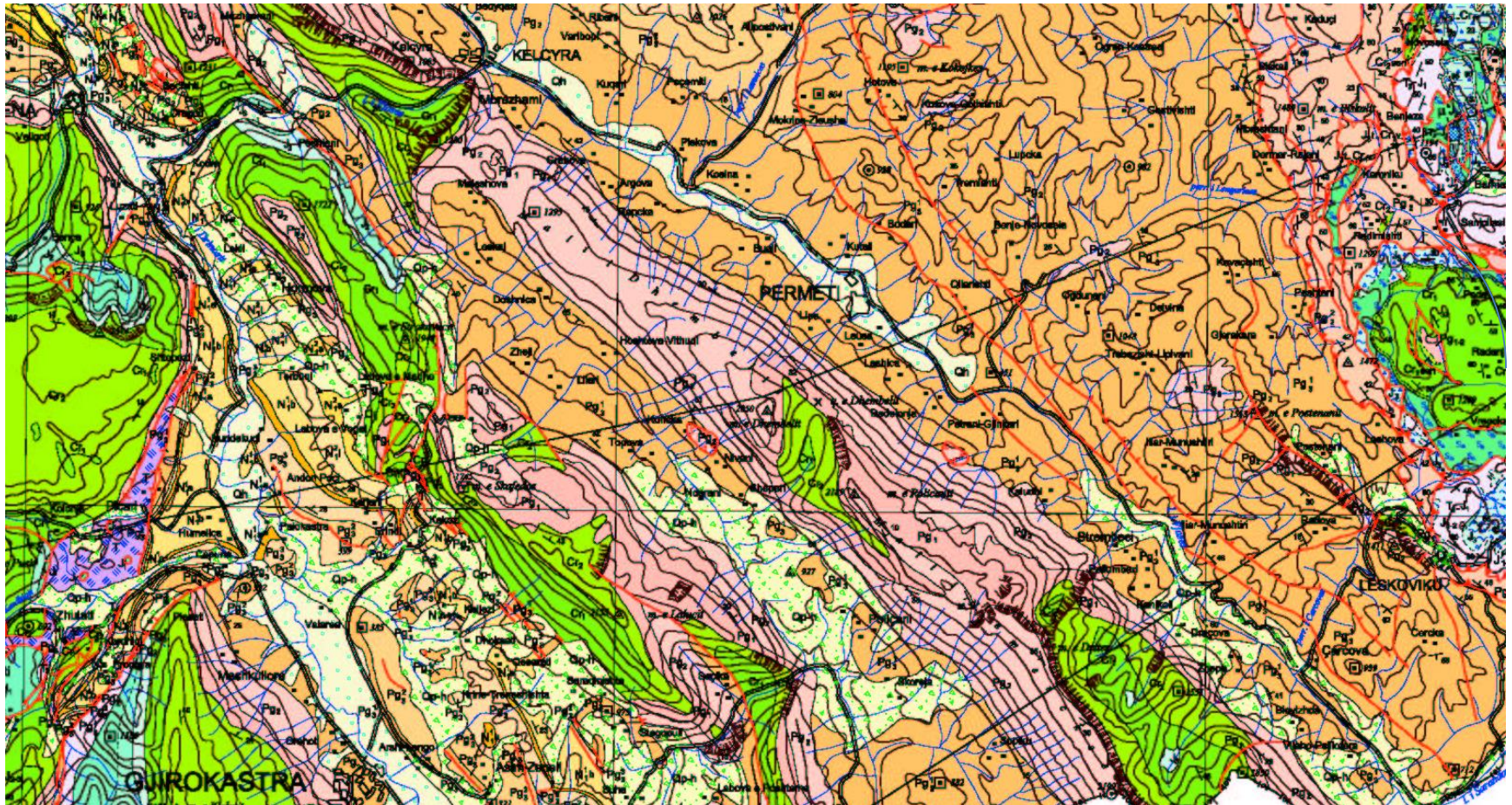
Important for the policymakers:

Vjosa is a natural system, in equilibrium, unique and indivisible. It is made of natural elements that are morphogenetically connected and dependent to each-other, from the inclination of the valley and the level of the erosion, to the existence of the Narta Lagoon or Pisha Beach.



...These elements are not given once and for all. They are in equilibrium, but they can absolutely change. Every small change in one element will push changes to other elements, sometime irreversible... Even with economical losses.

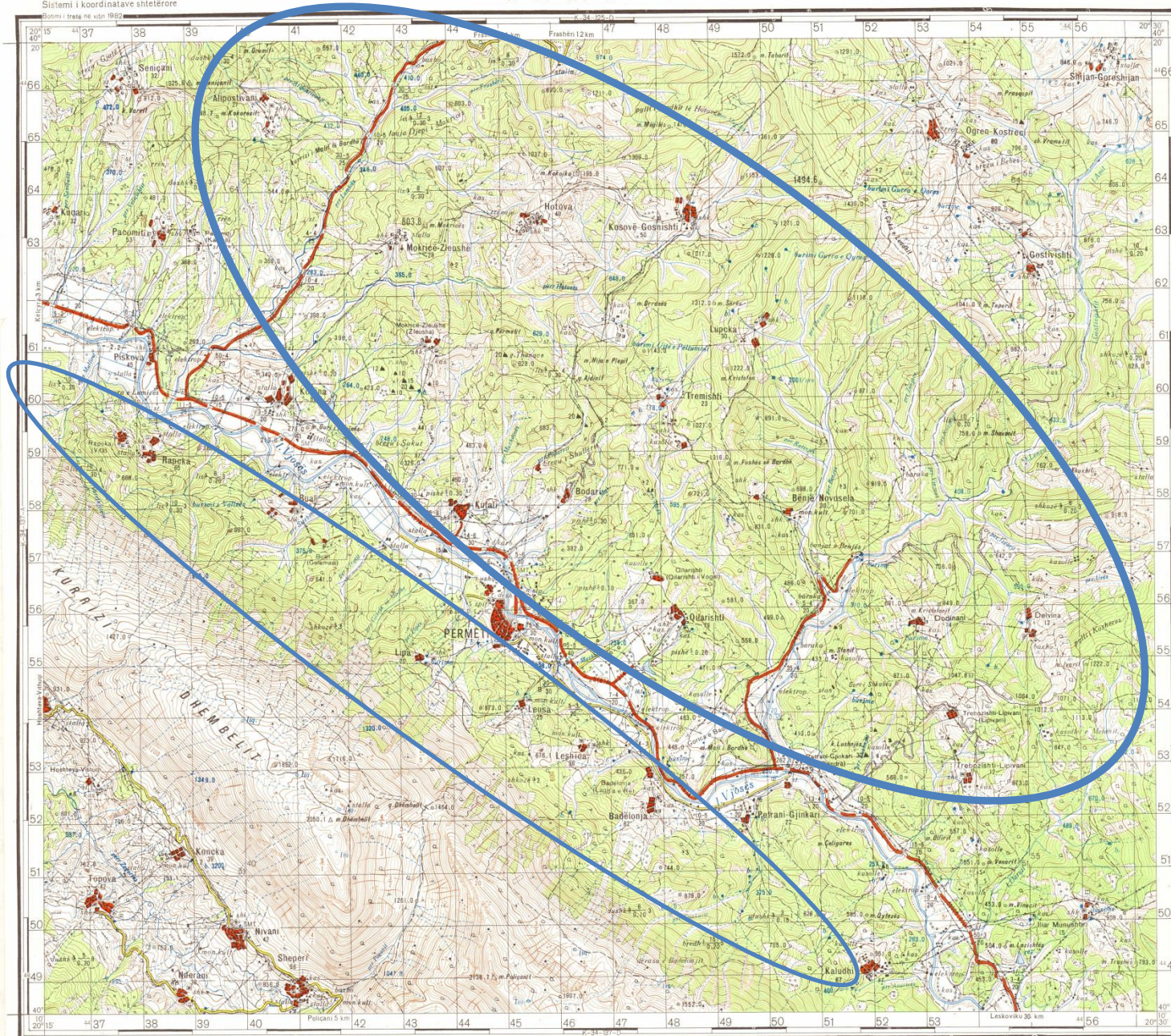
Geomorphological features:



In the sector Mesare-Kelcura the valley is product of the adaptation of the river Vjosa with the synclinal structure of Permeti, mostly in flysch, of the Ionian tectonic zone. This synclinal is overlapped by the Tectonic zone of Kruja from the north-east. Also this structure is made from flysch. This is why the river of Vjosa in this section has long branches on the right (Carshova, Langarica, Lemnica) . The consequence is that the width of the valley is from 3 km in Mesare to 4 km in Kelcyra. On the left side of the river, the presence of the carbonatic rocks of the anticlinal Dhembel-Nemercke and the high inclination of the slope make the branches rare and short.

Sistemi i koordinatave shtetërore

Bazimi i trajtë në vitin 1982



These geomorphologic features create stability in the river activity (erosion and accumulation) and make possible that the valley has 7 levels of terraces. This make possible a very high biodiversity.

Deklinacion i vitit 1980 Indor 2°24'(0-40) Afër meqatër i
nendërshkëlqyer 24'(0-27) Qafë e ndërkështit të bu-
shtetit në valë tërësisht të rreptë të koordinatave, shprehja me-
satare e gjatësisë magnetike-indore 2°48'(0-47) Niveli i
vjetër i deklinacionit Indor 0°05'(0-01)

Shprehja në vijat e rreptë ndërkështit e gjatësisë
(në ndryshje e gjatësisë=3,6)



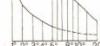
1:50 000

Në 1 centimetër 500 metra

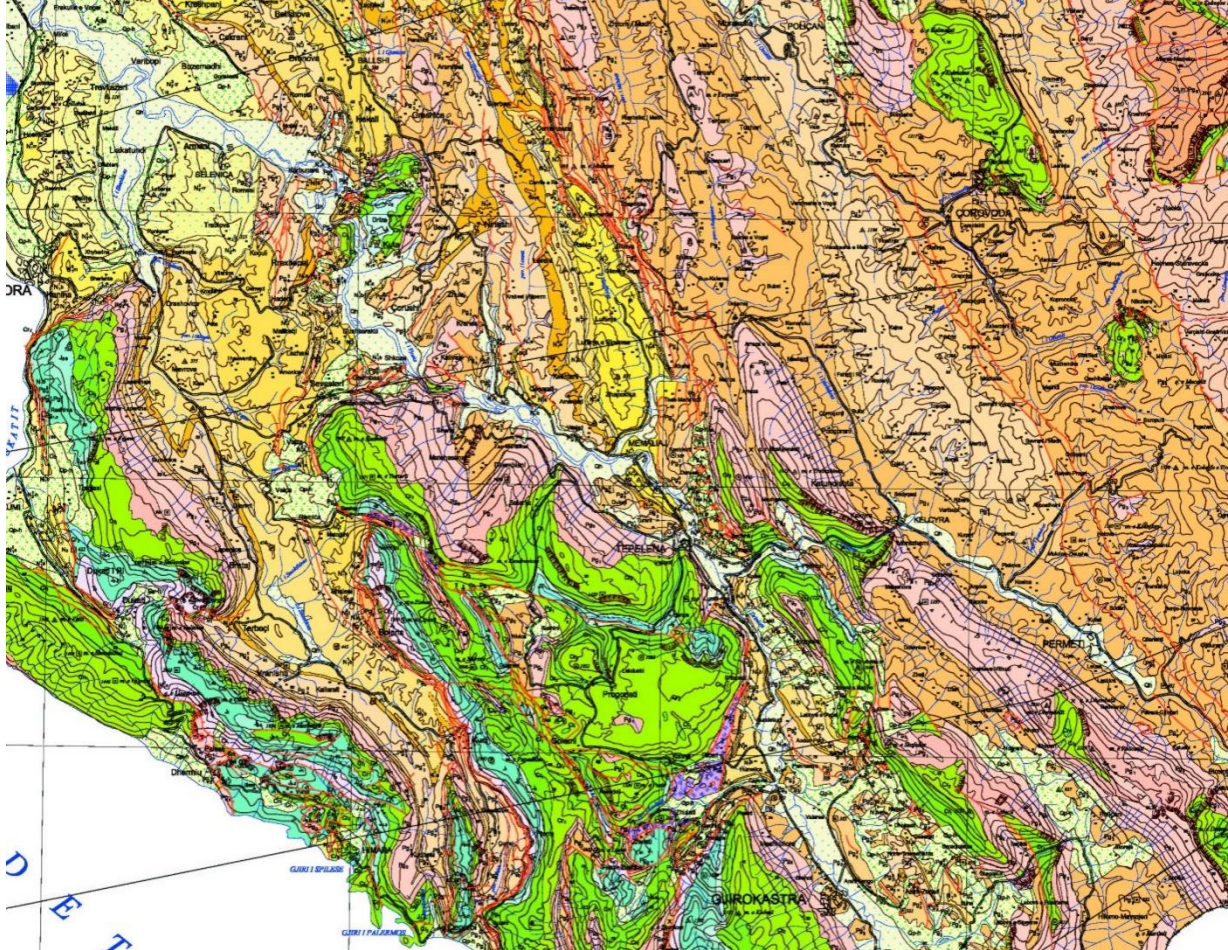
Lloset kryesore janë hequr në çdo 20 metra

Lartësia më e lartë nga niveli i detit Adriatit

R. HANXHARI

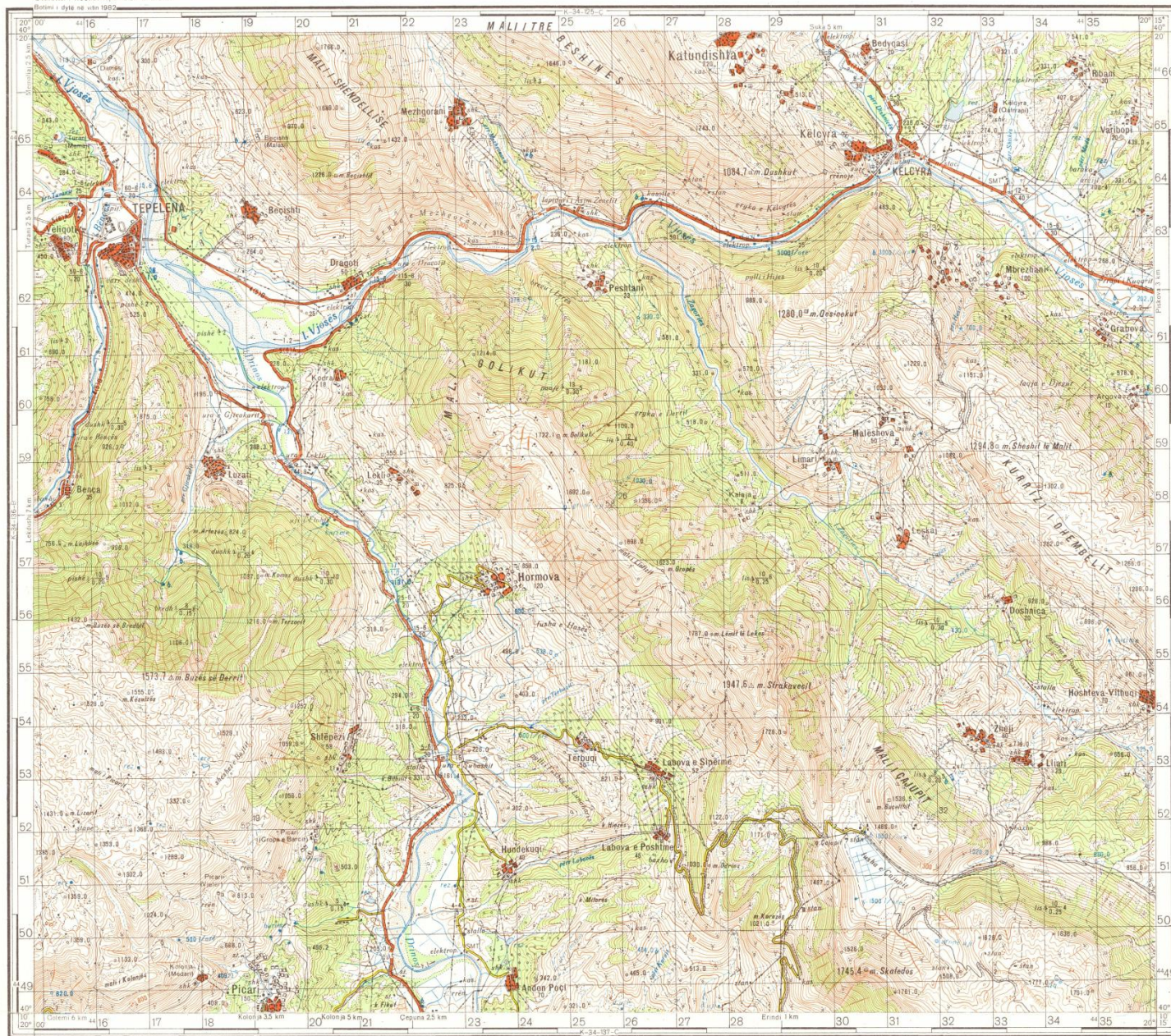


Perpular në bazë të origjinaleve të perplimit me shkallë 1:25 000 të vitit 1980
U përgatit për botim dhe u shtyp në vitin 1982
Ritotur në vitin 1990



In the sector Kelcyra-Selenica (77 km) the valley is product of the inadaptation of the river Vjosa with the synclinal and anticlinal structures of the Ionian tectonic zone, both in flysch and carbonatic. These structures are overlapped one with each other from north-east to south-west, with overlapping faults.

The river cut diagonally these structures. When it cuts carbonatic structures it creates gorges, like Kalivac and Pocem. When the river cuts synclinals it creates the valley extensions between the gorges.

Sistemi i koordinatave shtetërore
Botimi i dytë në vitin 1982

These
geomorphological
features with
gorges and
extensions
create high
biodiversity and
landscape
diversity

Delimitimi i vitit 1980 ndër 2°30' (0-42) km me rezultat i
meridianit - paralalel 0°34' (0-09) (që vëndoset në bu-
sulet në vijë vertikale të ngjashme të koordinatave, shprehja me-
tastare e gjerësia magnetike-indirekte 3°04' (0-05). Niveli i
vijës i delimitimit ndër 0°05' (0-05).
Shprehja në krahë janë tërësi ndarjet e gjeometrit
(në ndarje e gjeometrit 3.6)



1:50000

1 cm për 500 metra

1000 500 0 500 1000
Llogarit kështu: përfaqësojë në 20 metra
Llogaritë janë mënyrë niveli - deti Adriak

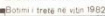
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Barashtesa 20 m

Barashtesa 100 m

Popullar në bazë të origjinalit të përpilimit me shkallë 1:25 000 të vitit 1980
U përgatit për botim dhe u shtyp në vitin 1982
Ribotuar në vitin 1989

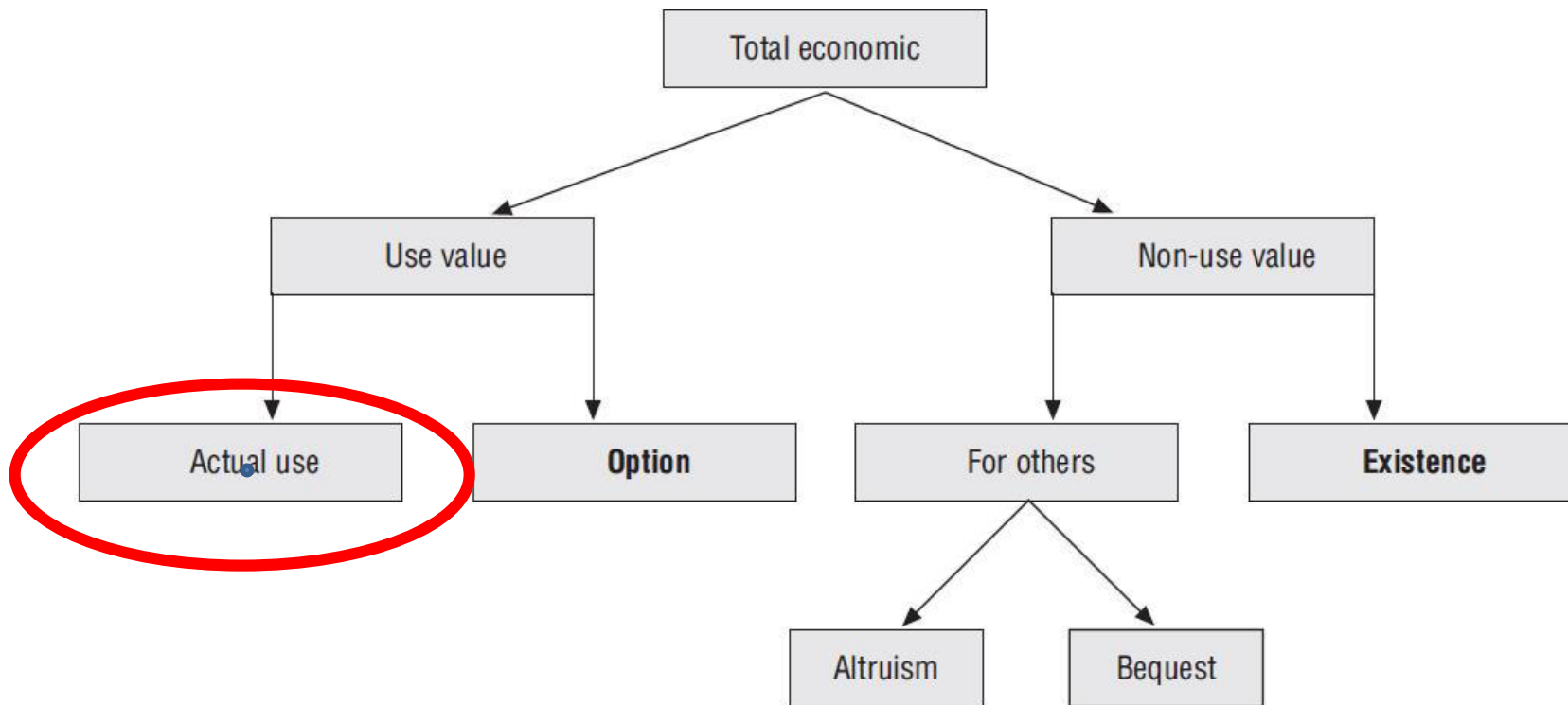
2° 3' 4" 5" 8' 10" 30"



This is why there are Mediterranean Bushes even in Permet, which is a value.

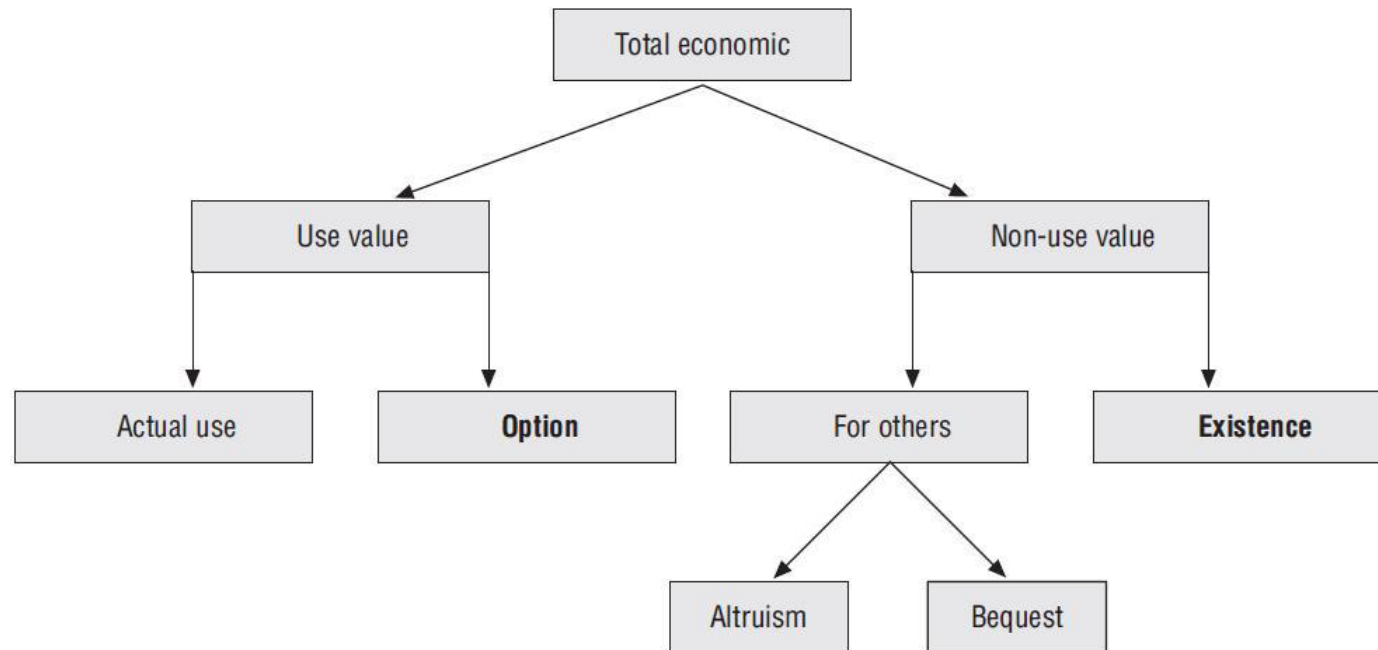
Total Economic Value

Figure 6.1. **Total economic value**



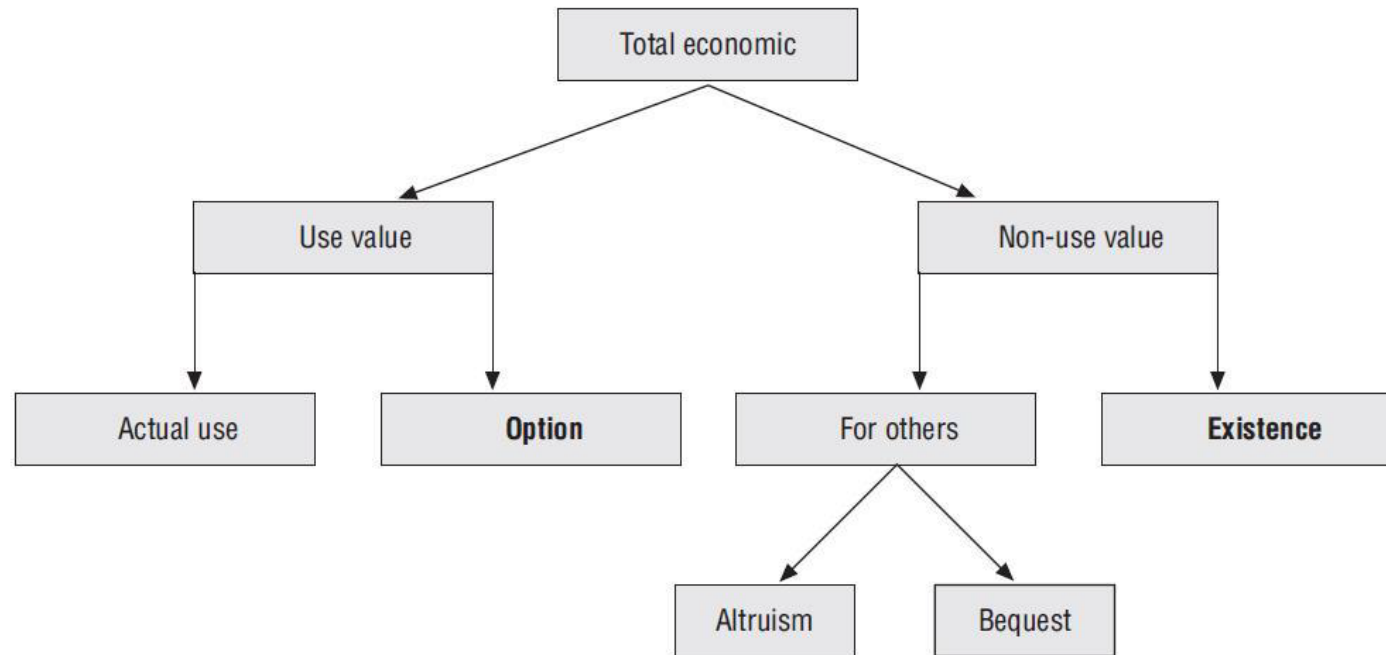
Source: OECD 2006

Figure 6.1. **Total economic value**



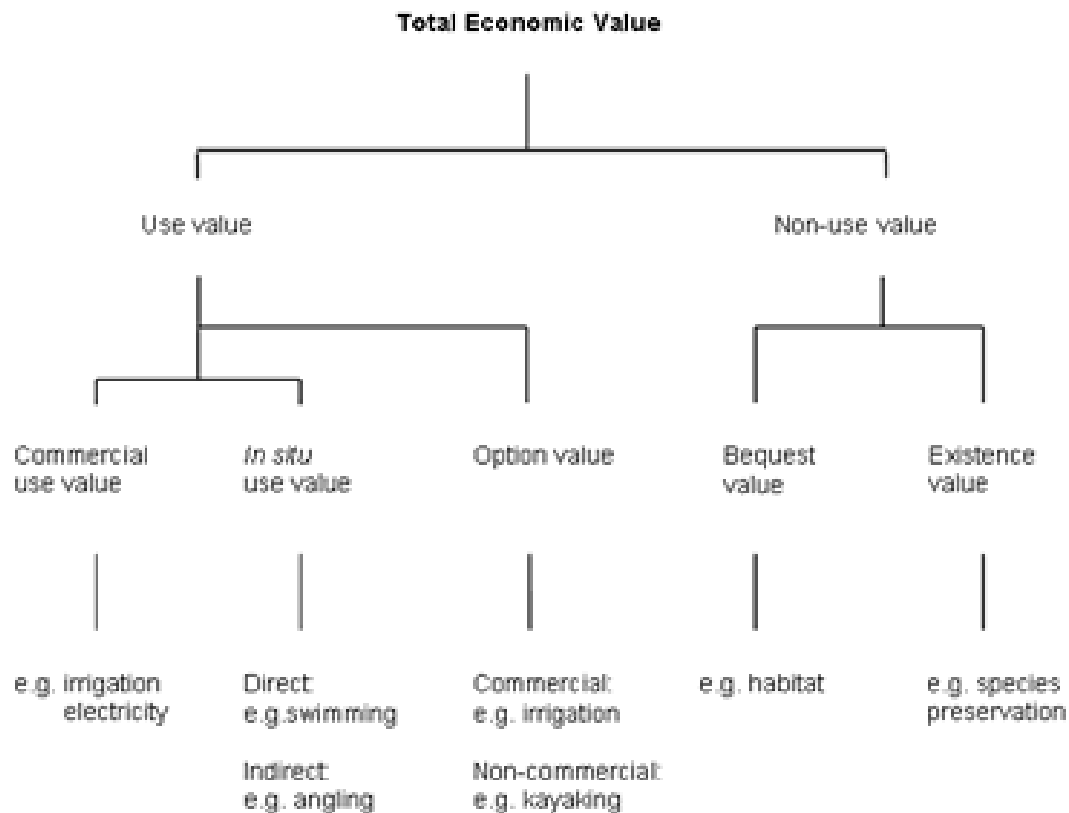
- **Actual use value: the value placed on using the resource, whether directly or indirectly, whether the use consumes the resource or not.** For example, the willingness to pay for swimming in a river, or using the water for irrigation.
- **Option value: the value placed on the option to use the resource at some point in the future, whether that use is known or unknown.** For example, the value placed on preserving a river so you can swim in it later or in case gold is found in the river. (Note: the literature often calls known uses 'option value' and unknown uses 'quasi-option' value. While this distinction is likely important in survey design it is not important for our [the Treasury's] purposes)

Figure 6.1. **Total economic value**



- ***Altruism value:*** the value placed on preserving the resource so others can use it now, even when there is no planned or potential use for the person willing to pay.
example, the willingness to pay on preserving a river so that others can swim in it, even though you have no intention of ever doing so.
- ***Bequest value:*** the value placed on passing on the resource for the use of future generations. For example, the willingness to pay for preserving a river so that your children can swim in it.
- ***Existence value:*** the value placed on knowing that a resource exists, even though no-one may ever use it. For example, the willingness to pay for excluding all uses of a river, so as to preserve its existence.

Total economic value for water



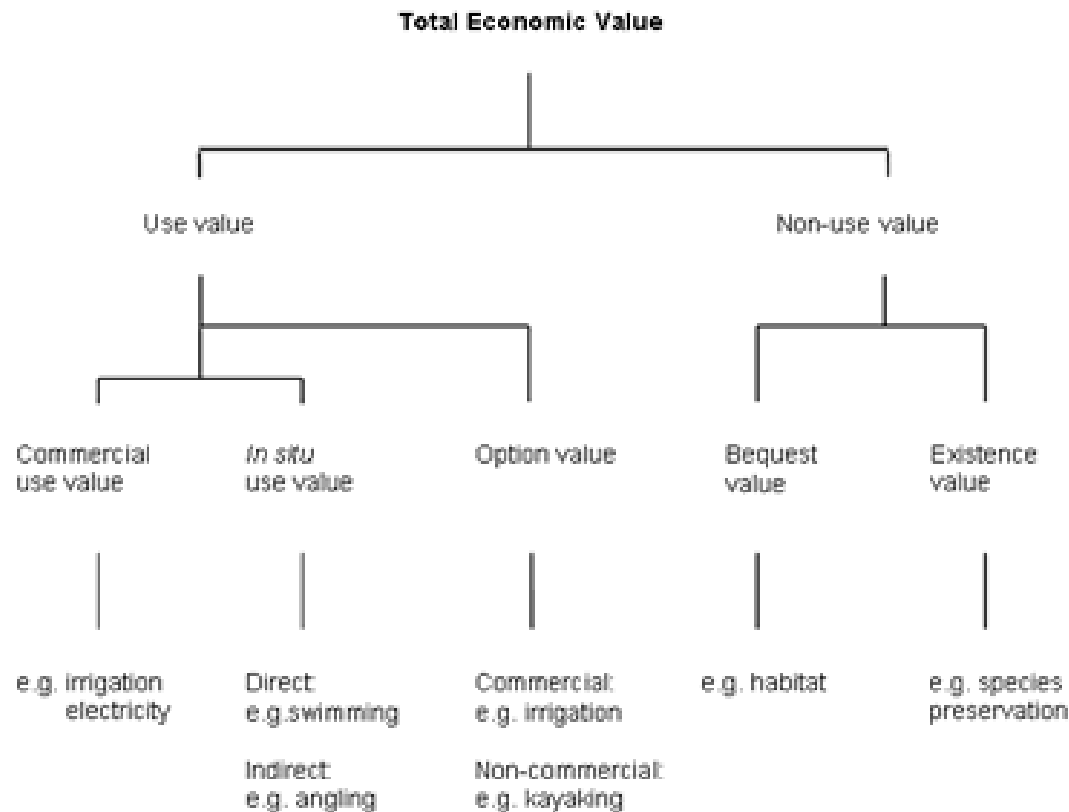
Source: MfE 2007 Option and Existence Values for Waitaki Catchment

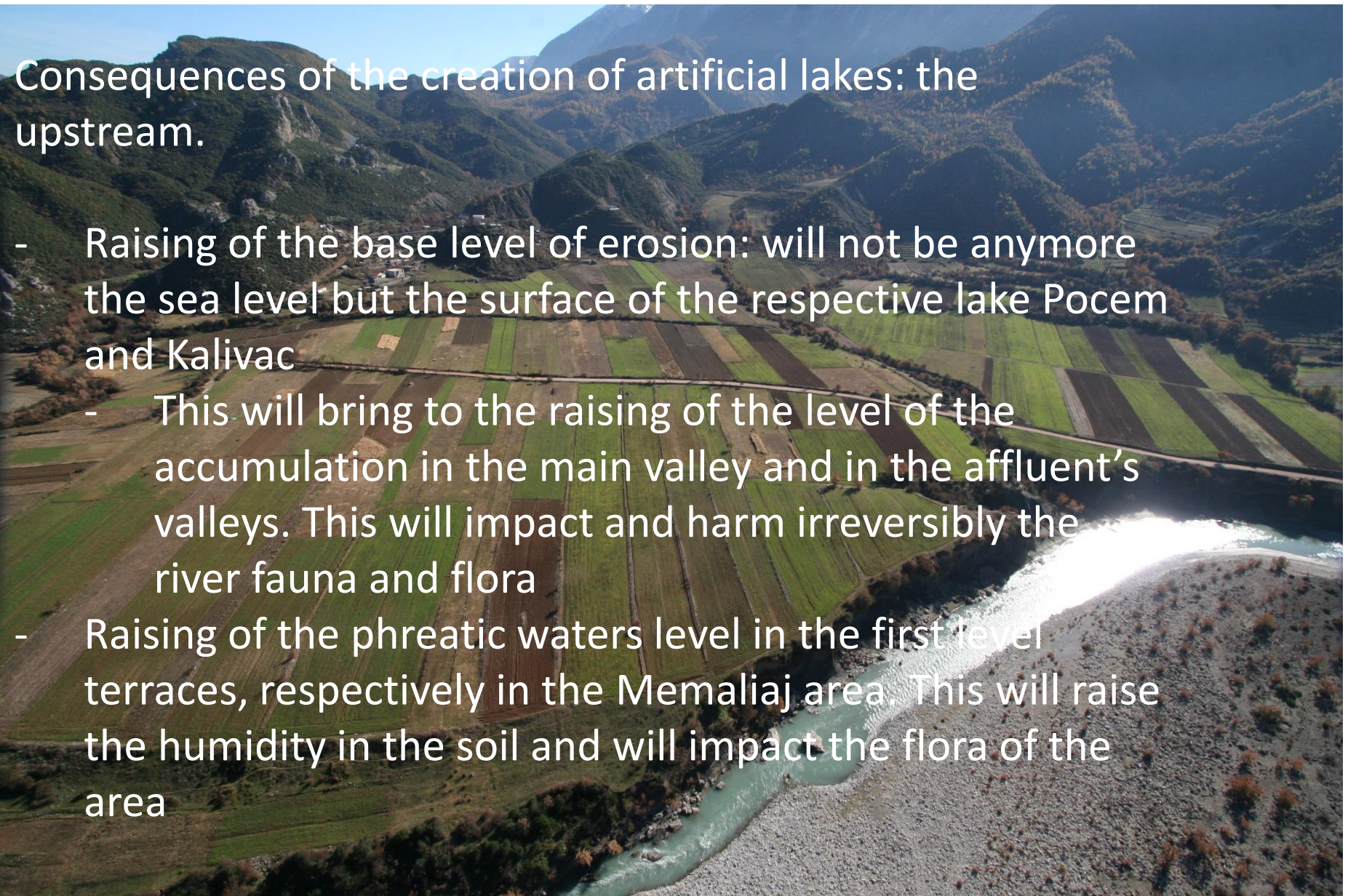
Contradictory commercial use value:

electricity in Kalivac and Pocem

VS

agriculture upstream and coastal tourism in Pishe Poro



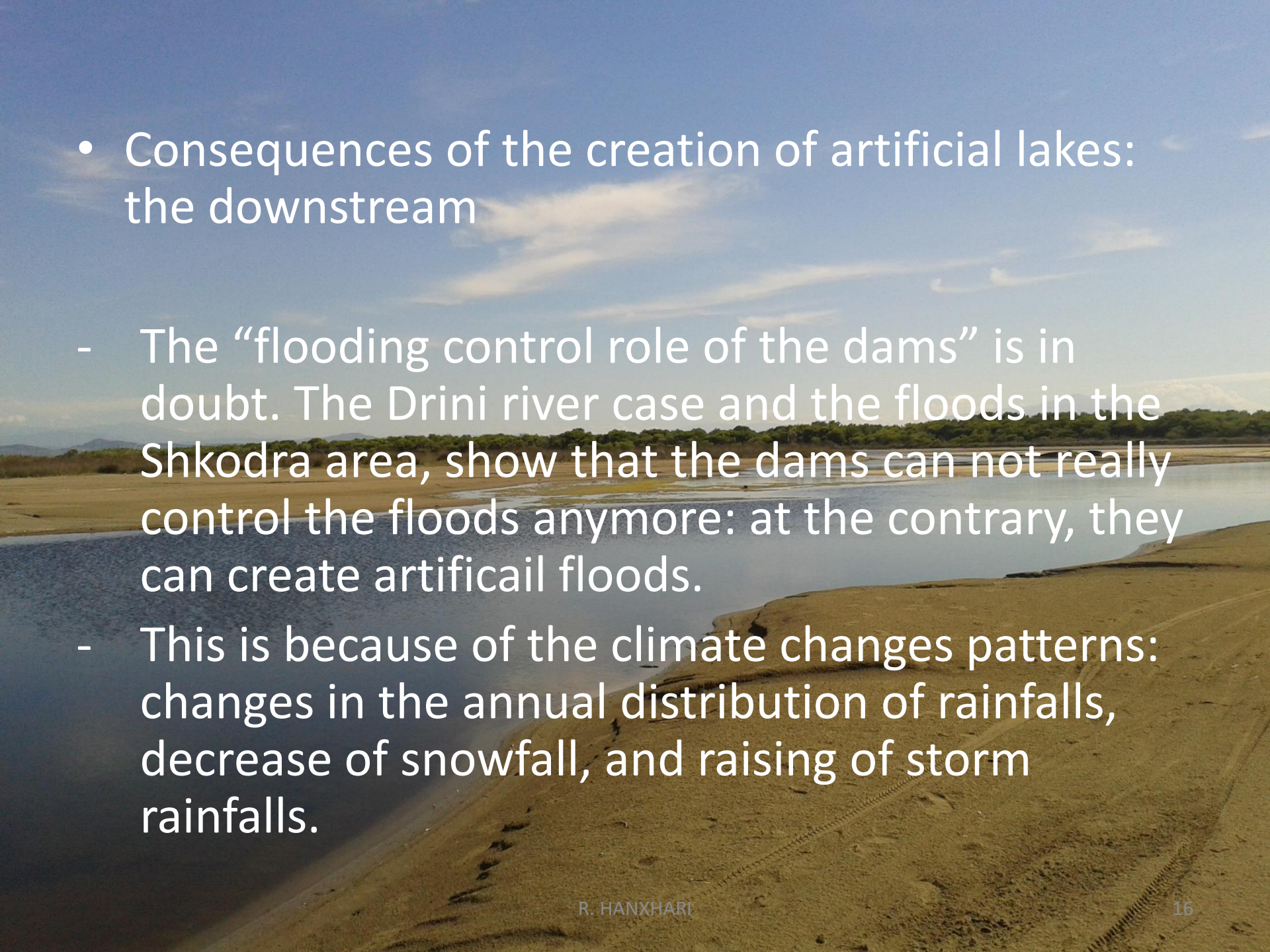


Consequences of the creation of artificial lakes: the upstream.

- Raising of the base level of erosion: will not be anymore the sea level but the surface of the respective lake Pocem and Kalivac
- This will bring to the raising of the level of the accumulation in the main valley and in the affluent's valleys. This will impact and harm irreversibly the river fauna and flora
- Raising of the phreatic waters level in the first level terraces, respectively in the Memaliaj area. This will raise the humidity in the soil and will impact the flora of the area

- Consequences of the creation of artificial lakes: the downstream

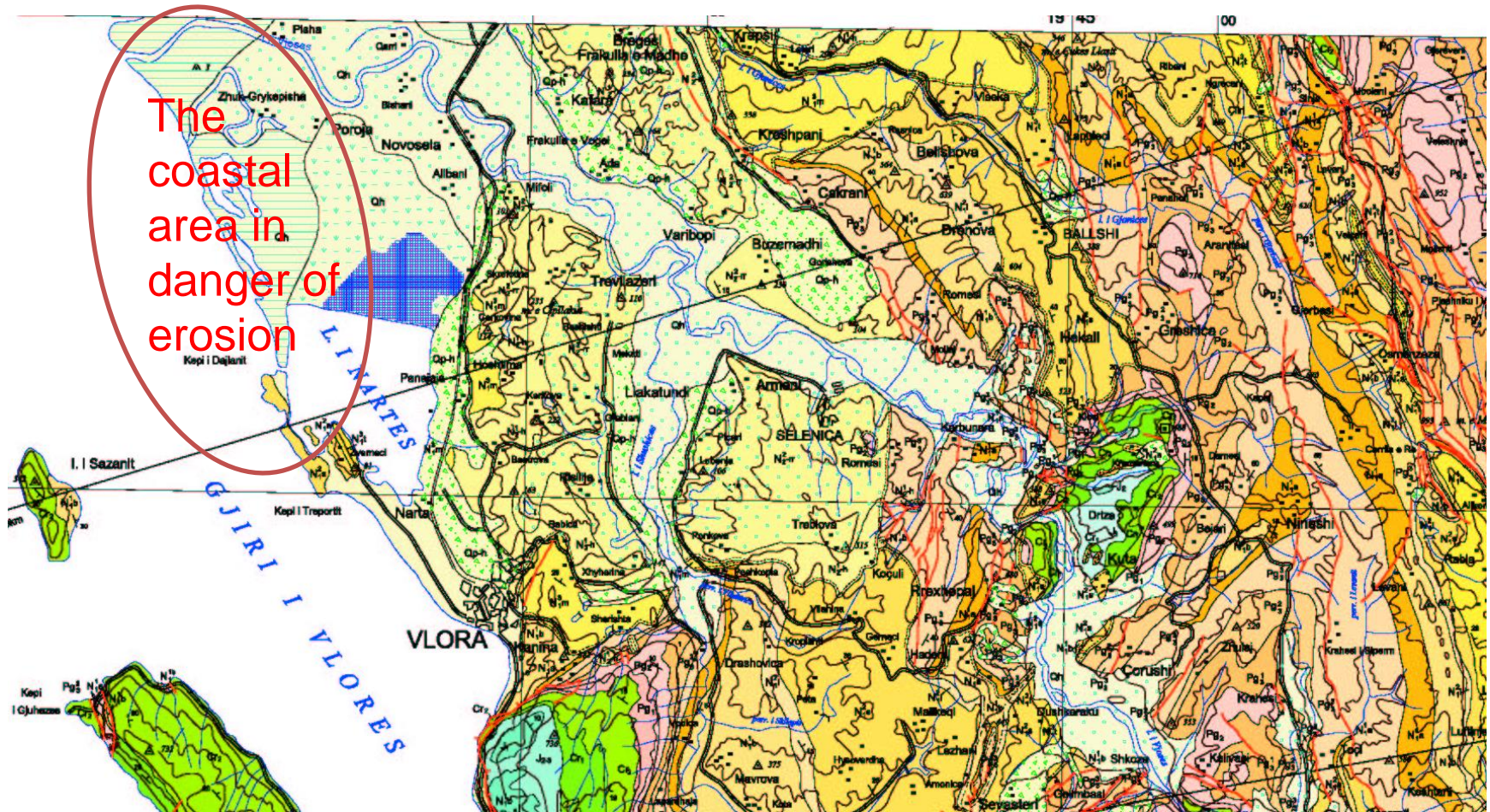
- The “flooding control of the dams” is in doubt. Facts are proving that it is fake. The Drini case shows that the dams can not control the floods: at the contrary, they can create floods. This is much more probable with the climate changes patterns: changes in the annual distribution of rainfalls, and raising of storm rainfalls.

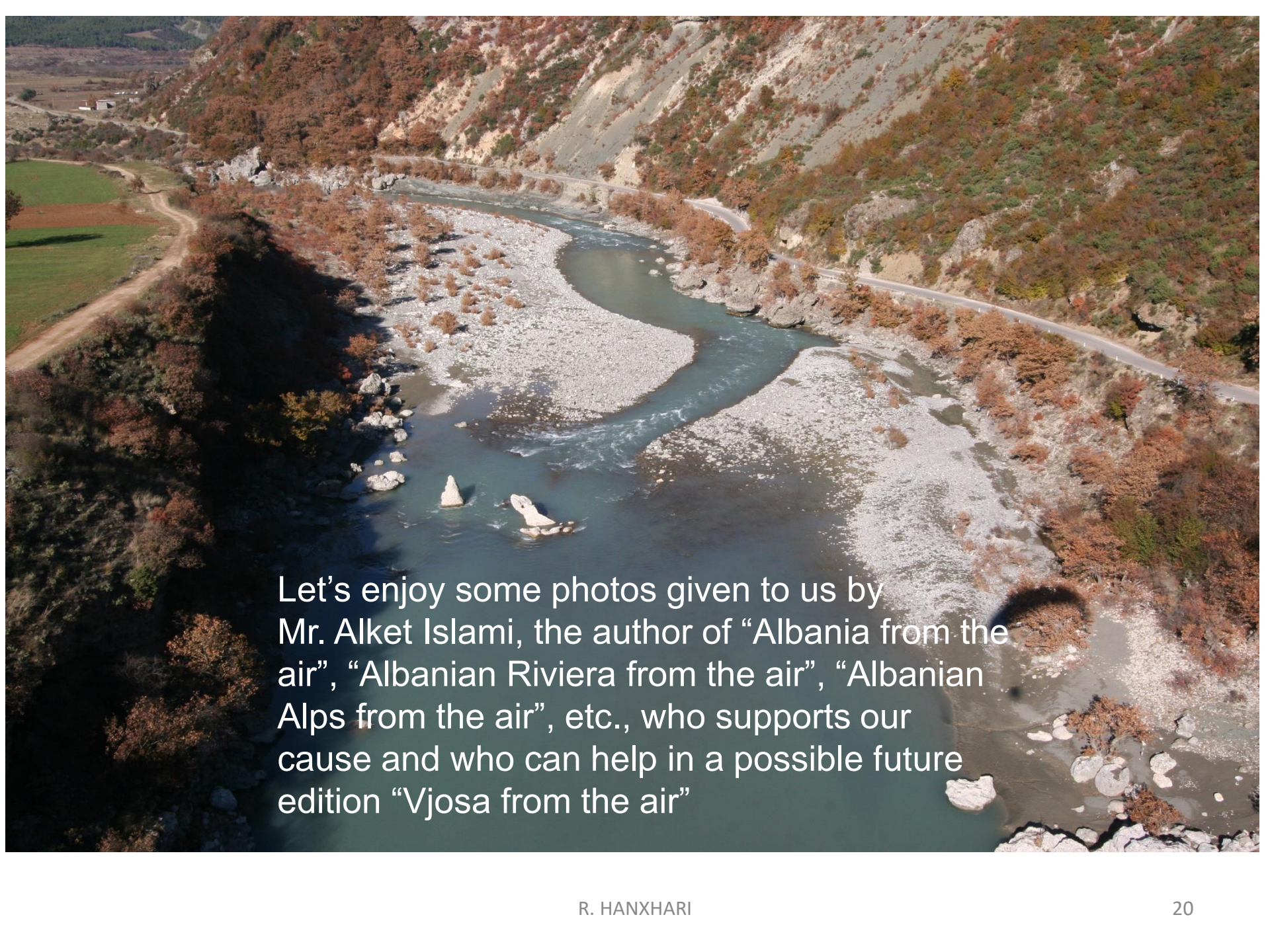
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- Consequences of the creation of artificial lakes: the downstream
 - The “flooding control role of the dams” is in doubt. The Drini river case and the floods in the Shkodra area, show that the dams can not really control the floods anymore: at the contrary, they can create artificial floods.
 - This is because of the climate changes patterns: changes in the annual distribution of rainfalls, decrease of snowfall, and raising of storm rainfalls.

- Consequences of the creation of artificial lakes: the downstream
 - There will be a decrease of the solid sediments of the river Vjosa to the sea: they will be captured by the lakes, and there will be decanting of the solid particles at the bottom of the lakes. Vjosa will bring to the sea only the solid sediments of the Shushica river.
 - This means that less sediments will end up at the sea, and this will lead to coastal abrasion

- Consequences of the creation of artificial lakes: the downstream
 - The coastal abrasion will put at serious risk the existence of the Pishë Poro landscape at the Vjosa mouth and of the Narta Lagoon southern
 - Tourism development projects at Pishë Poro area will seriously be at risk
 - Coastal tourism VS energy

Coastal tourism VS energy



An aerial photograph of a river flowing through a valley. The river is a light blue-grey color, winding through a landscape covered in trees with autumn foliage in shades of brown, orange, and yellow. A paved road follows the curve of the river on the right side. The riverbed is visible in some areas, showing grey rocks and pebbles. The surrounding hills are steep and covered in similar autumn foliage. The overall scene is a scenic view of a river valley in autumn.

Let's enjoy some photos given to us by Mr. Alket Islami, the author of "Albania from the air", "Albanian Riviera from the air", "Albanian Alps from the air", etc., who supports our cause and who can help in a possible future edition "Vjosa from the air"

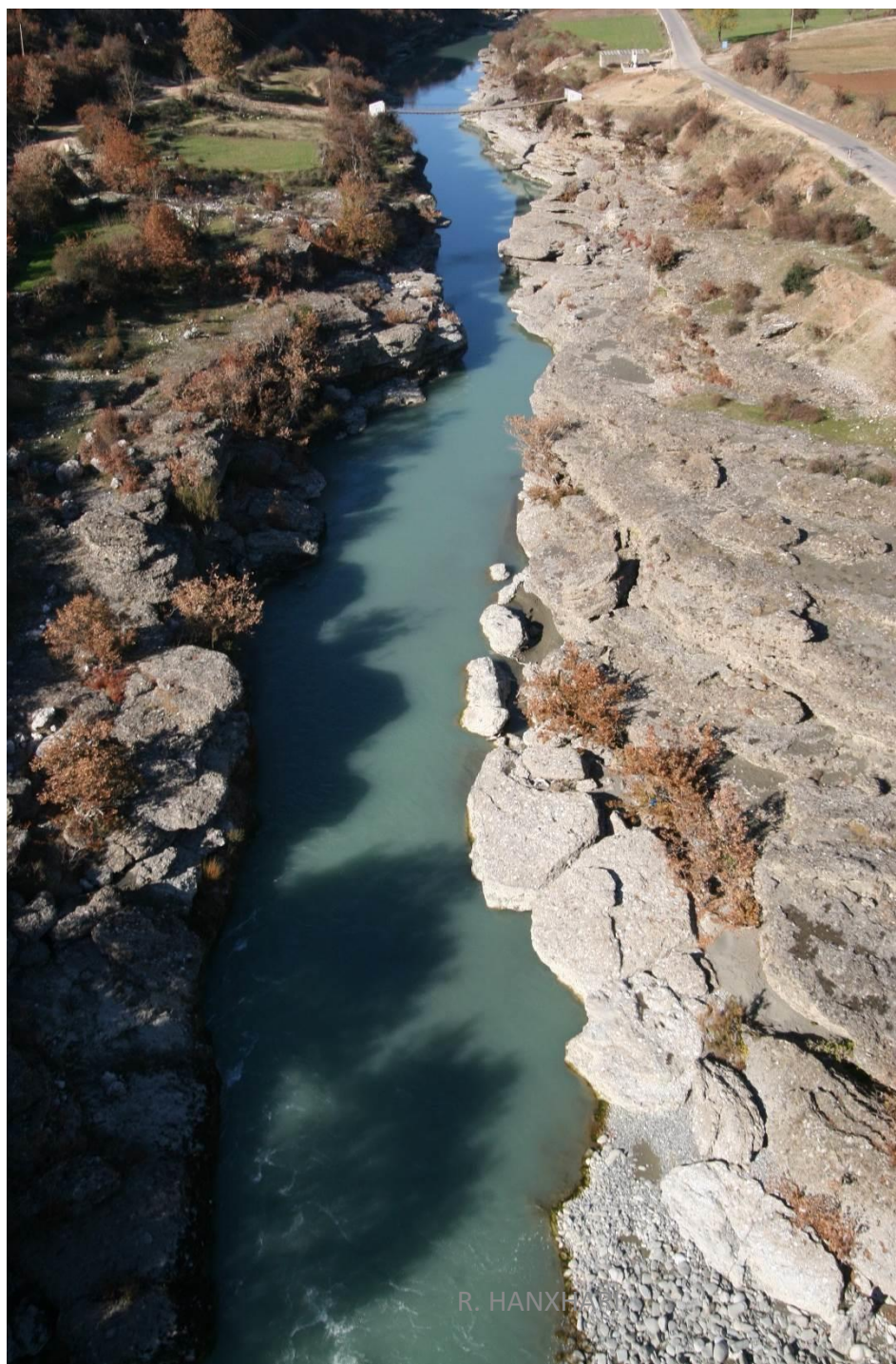


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Thankyou!

Questions ?