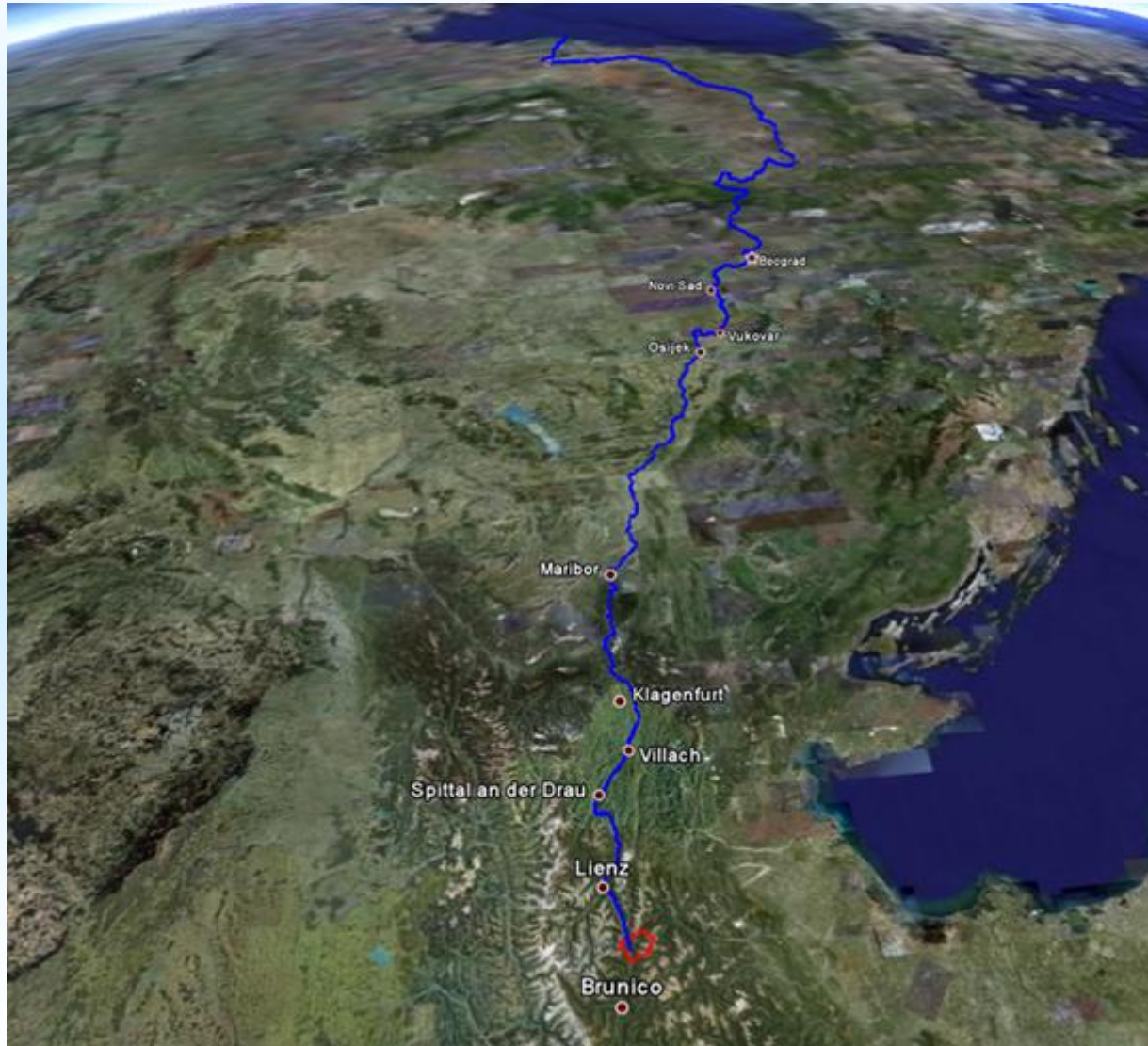




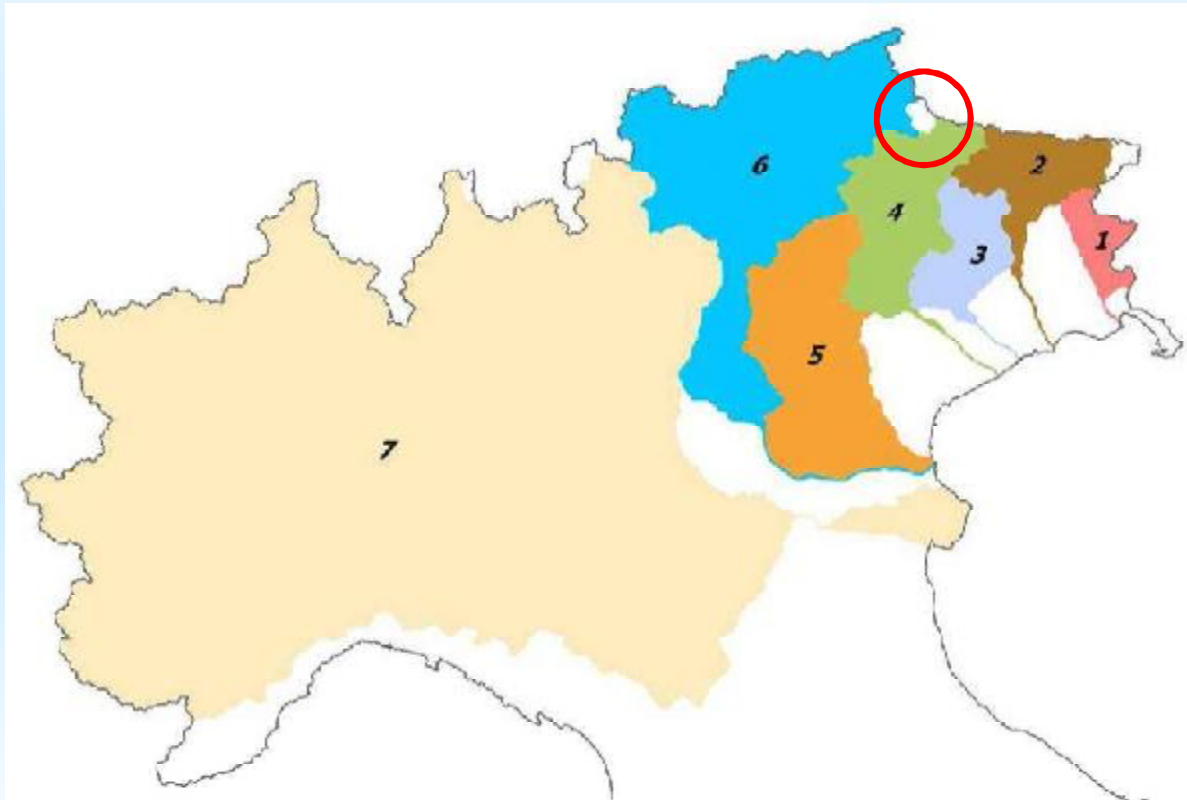
The Drava River in South Tyrol: “where the whole story comes from”



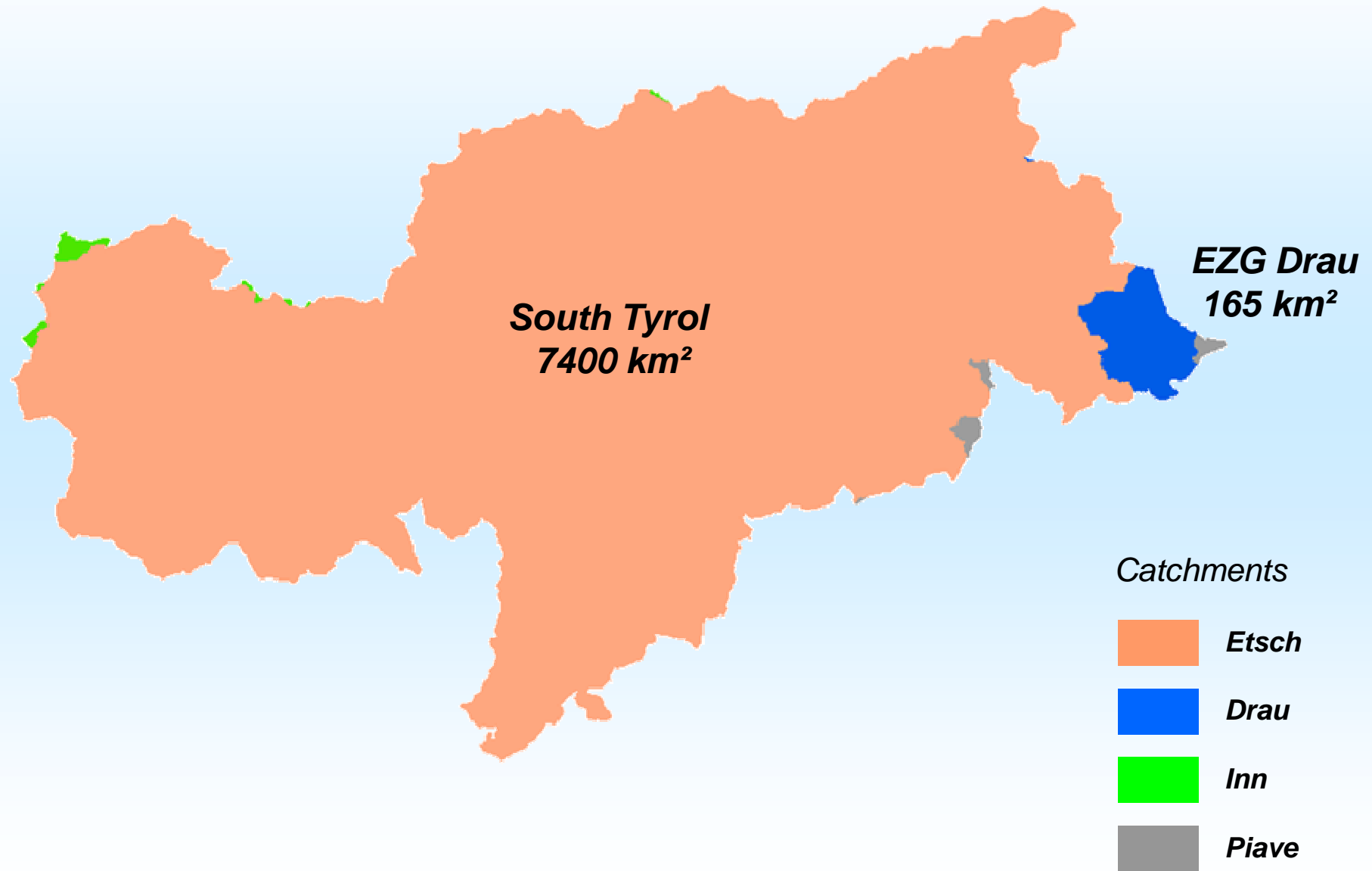


Northern Italy

Catchments by law 183 / 1989

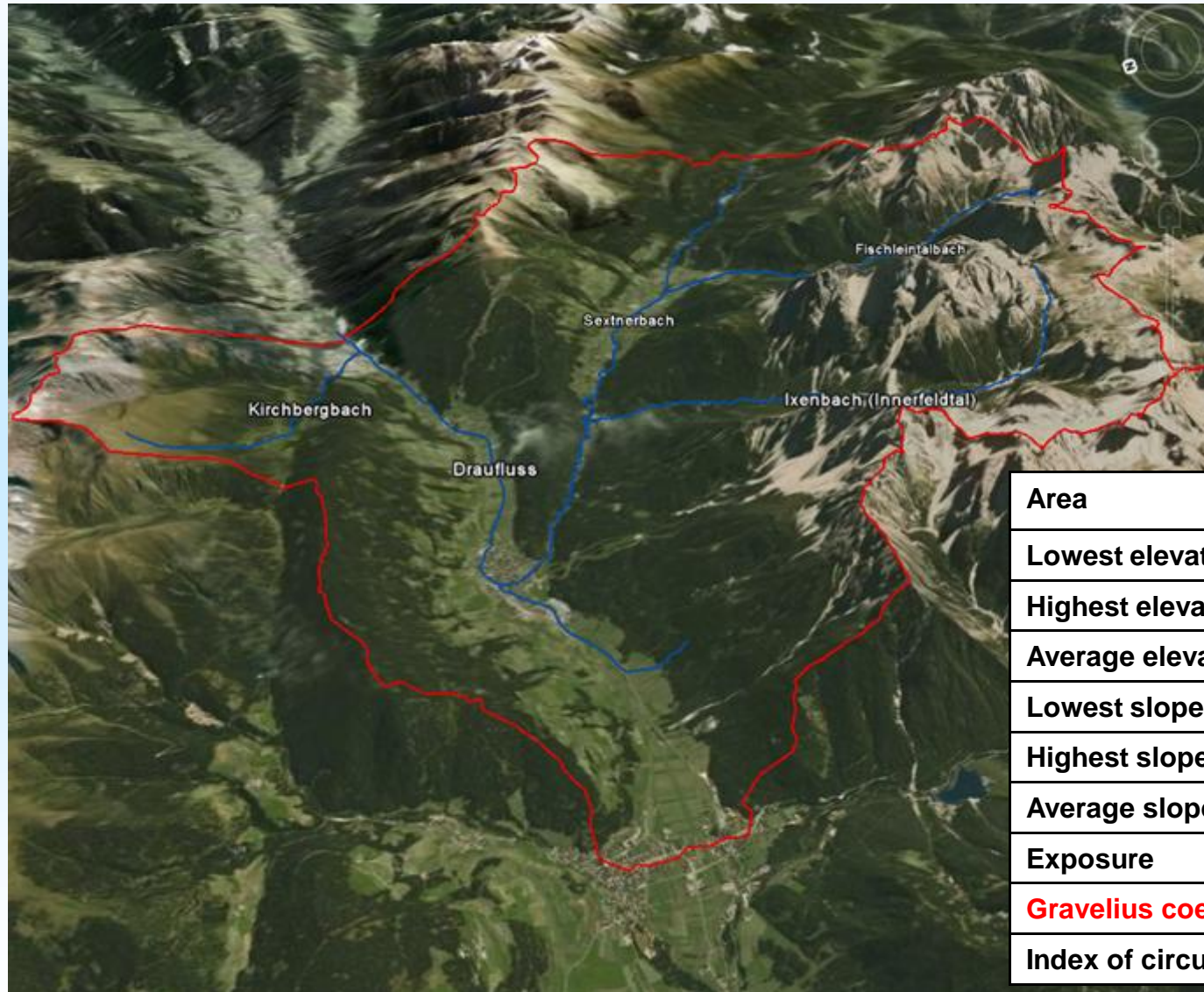


1. Isonzo
2. Tagliamento
3. Livenza
4. Piave
5. Brenta – Bacchiglione
6. Etsch
7. Po

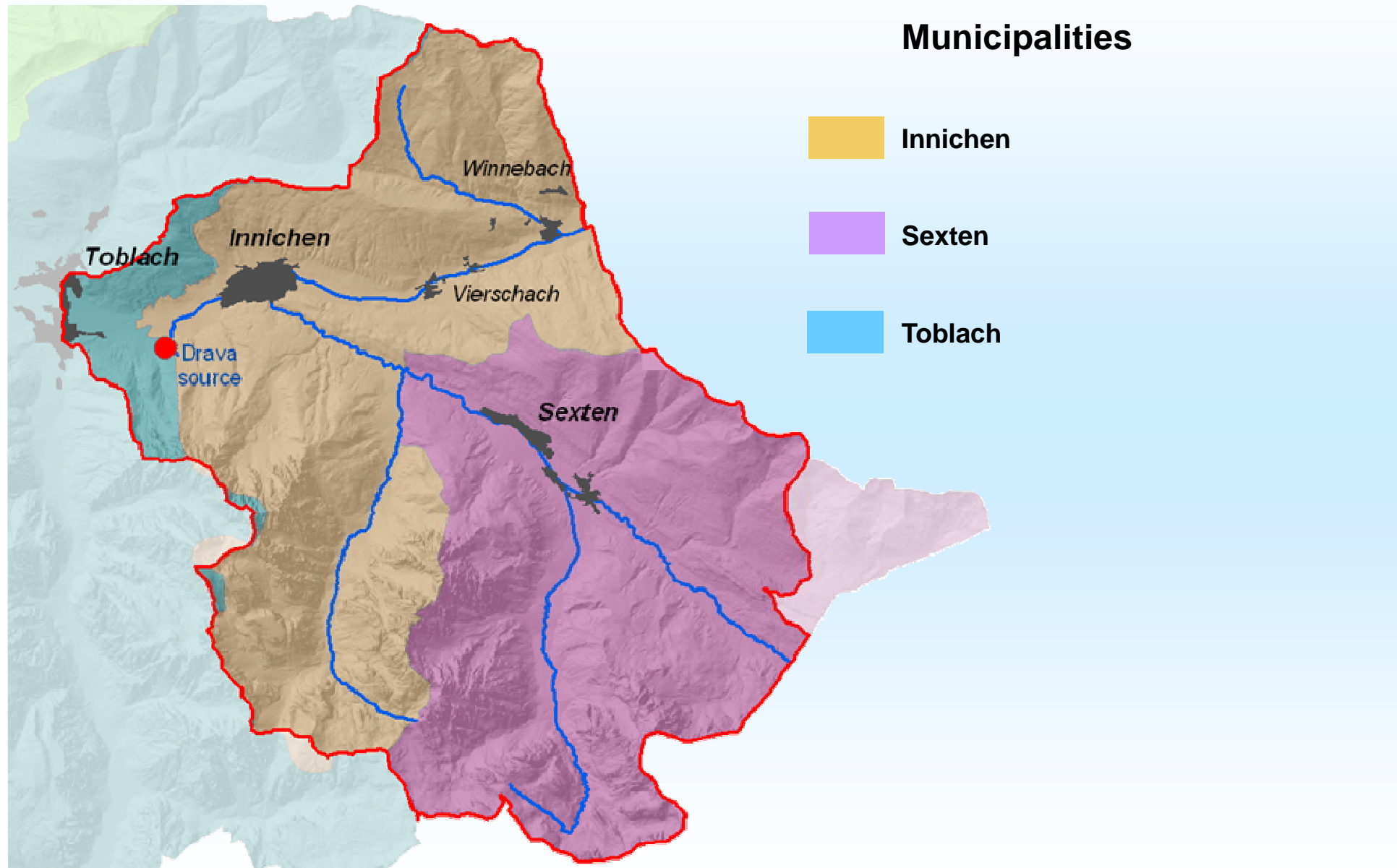




Morphology and related parameters



Area	165 Km ²
Lowest elevation	1110
Highest elevation	3140
Average elevation	1830
Lowest slope (%)	0 %
Highest slope (%)	80 %
Average slope (%)	26,22
Exposure	NNE
Gravelius coefficient	1,85
Index of circularity	0,29





Drava source



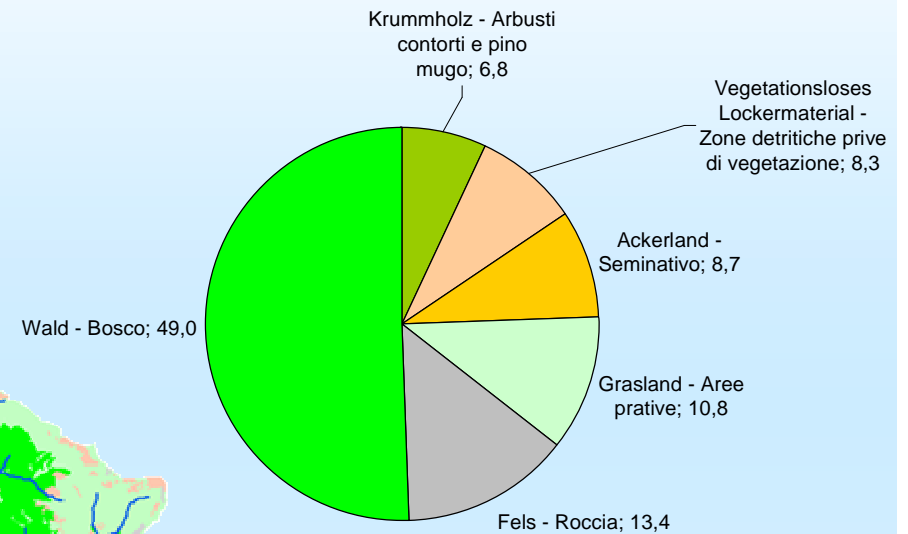
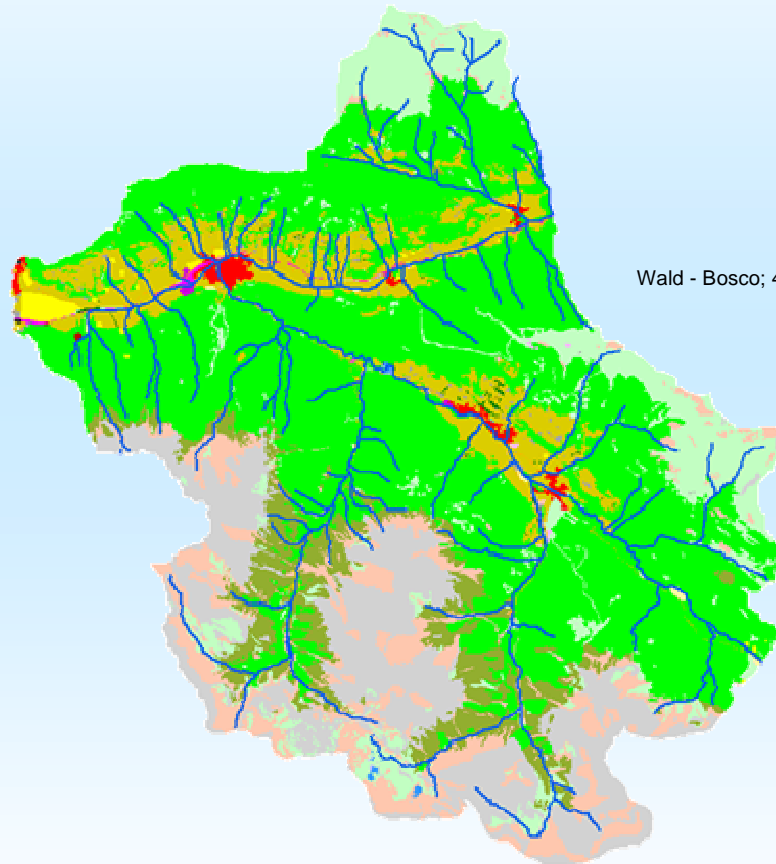






Landuse

- Abbauflaeche - Cave
- Deponien und Abraumtalde - Discariche
- Entsorgungsanlage - Impianto speciale
- Militaerflaeche - Zona militare
- Nicht klassifizierbare Flaeche - Area a copertura artificiale non classificabile
- Daemne - Dighe
- Ackerland - Seminativo
- Dauerkulturen - Culture permanenti
- Sonstige landwirtschaftliche Flaechen - Altre superfici agricole
- Krummholz - Arbusti contorti e pino mugo
- Wald - Bosco
- Hecken und Flurgehoeize - Siepi ed alberature
- Grasland - Aree prative
- Wiese, Weide, Zwerggessel, bestockte Wiesen - Prati asciutti o arbusti nani alberati, prati alberati
- Fels - Roccia
- Vegetationsloses Lockermaterial - Zone detritiche prive di vegetazione
- Feuchtblaechen - Aree umide
- Fliebgewaesser - Corsi d'acqua
- Stehendes Gewaesser - Bacini d'acqua





Environment & Landscape





Tourism



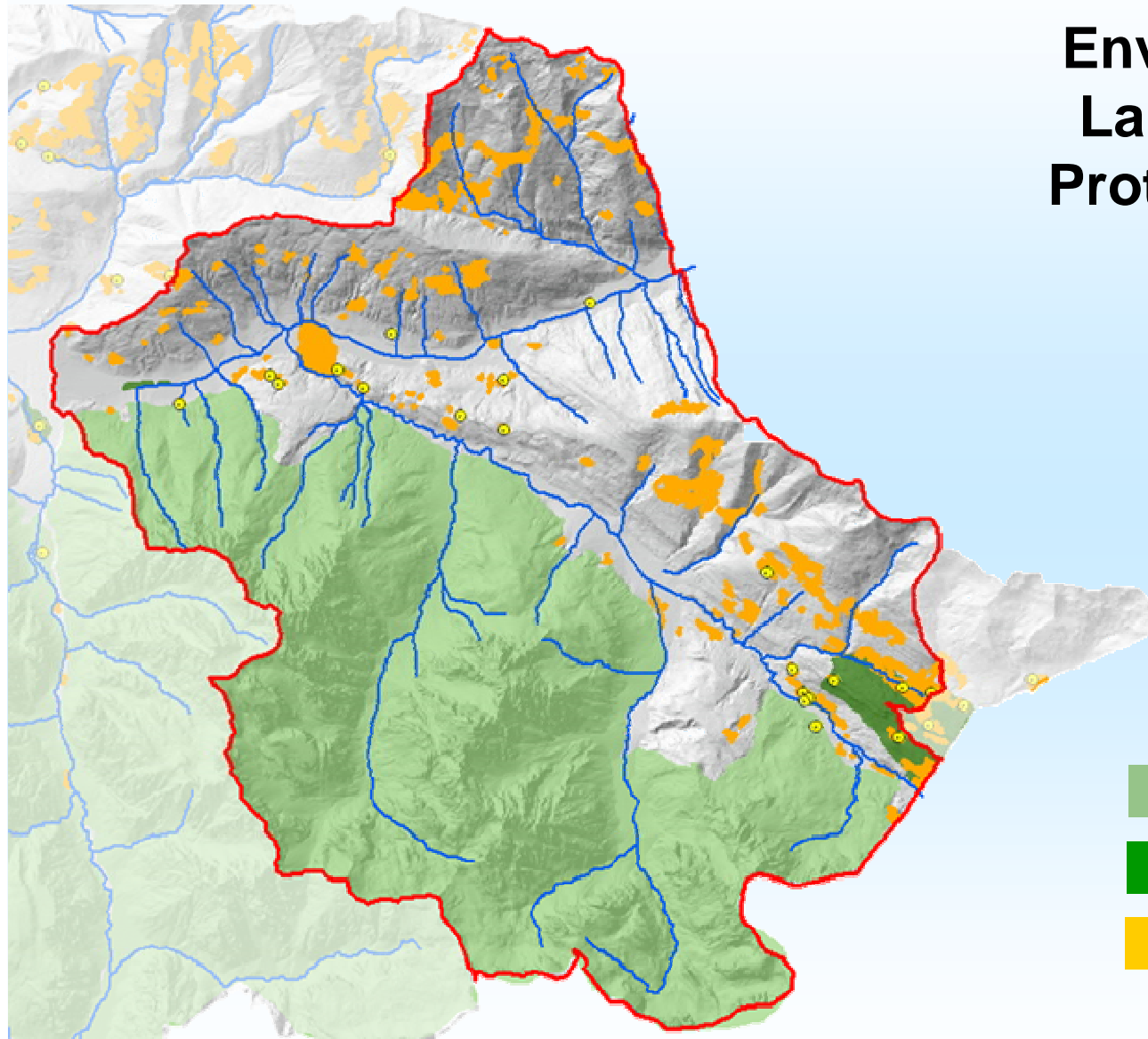


Environment & Landscape & Agriculture





Environment & Landscape → Protected Areas



-  Natural Parks
-  Biotopes
-  Other protected areas
-  Wet areas

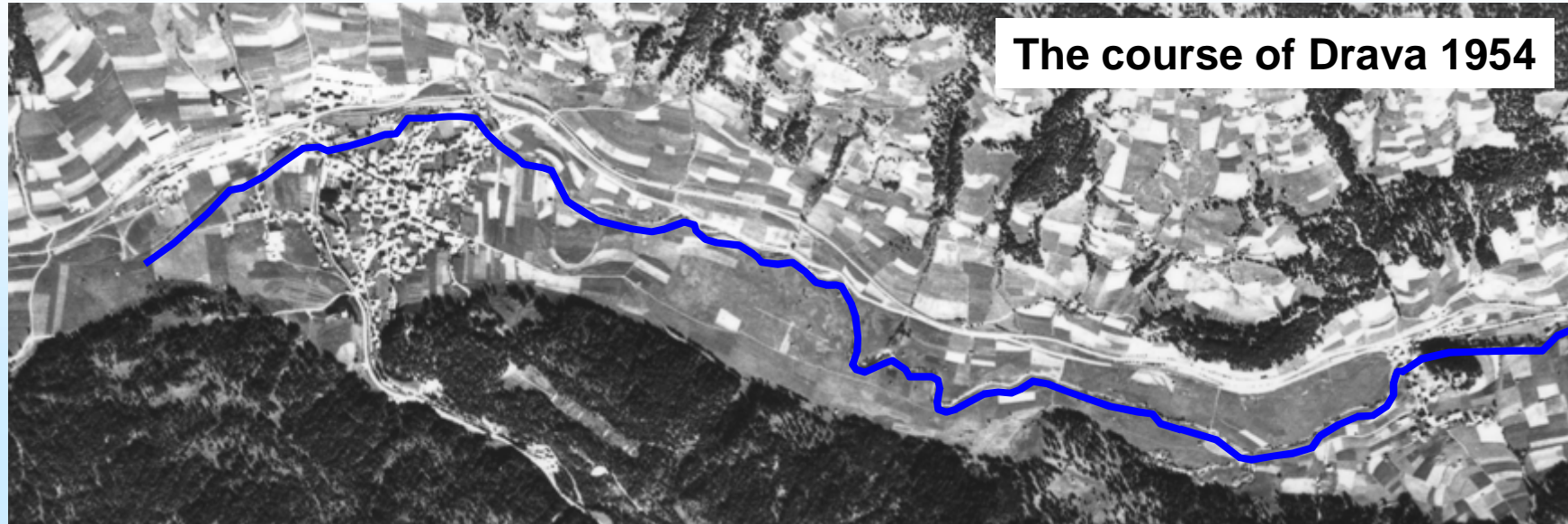


Environment & Landscape: An Unquestionable Highlight



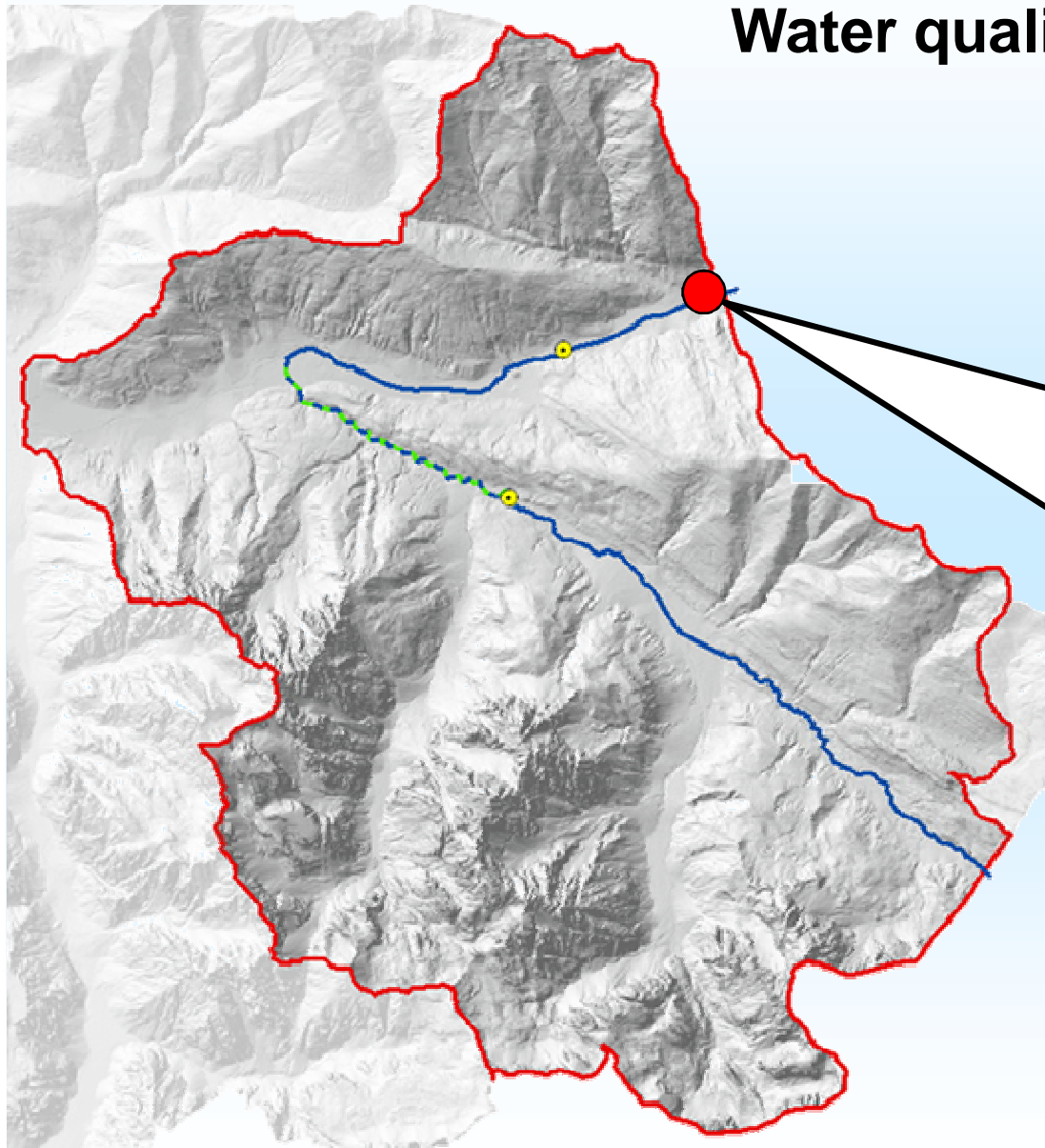




Environment & Landscape: The Changing Aspects





Water quality



-  Not polluted and not altered relevantly
-  Some evident pollution effects
-  Monitoring points



Utilization of the water resource

- Energy production
- Artificial snow production



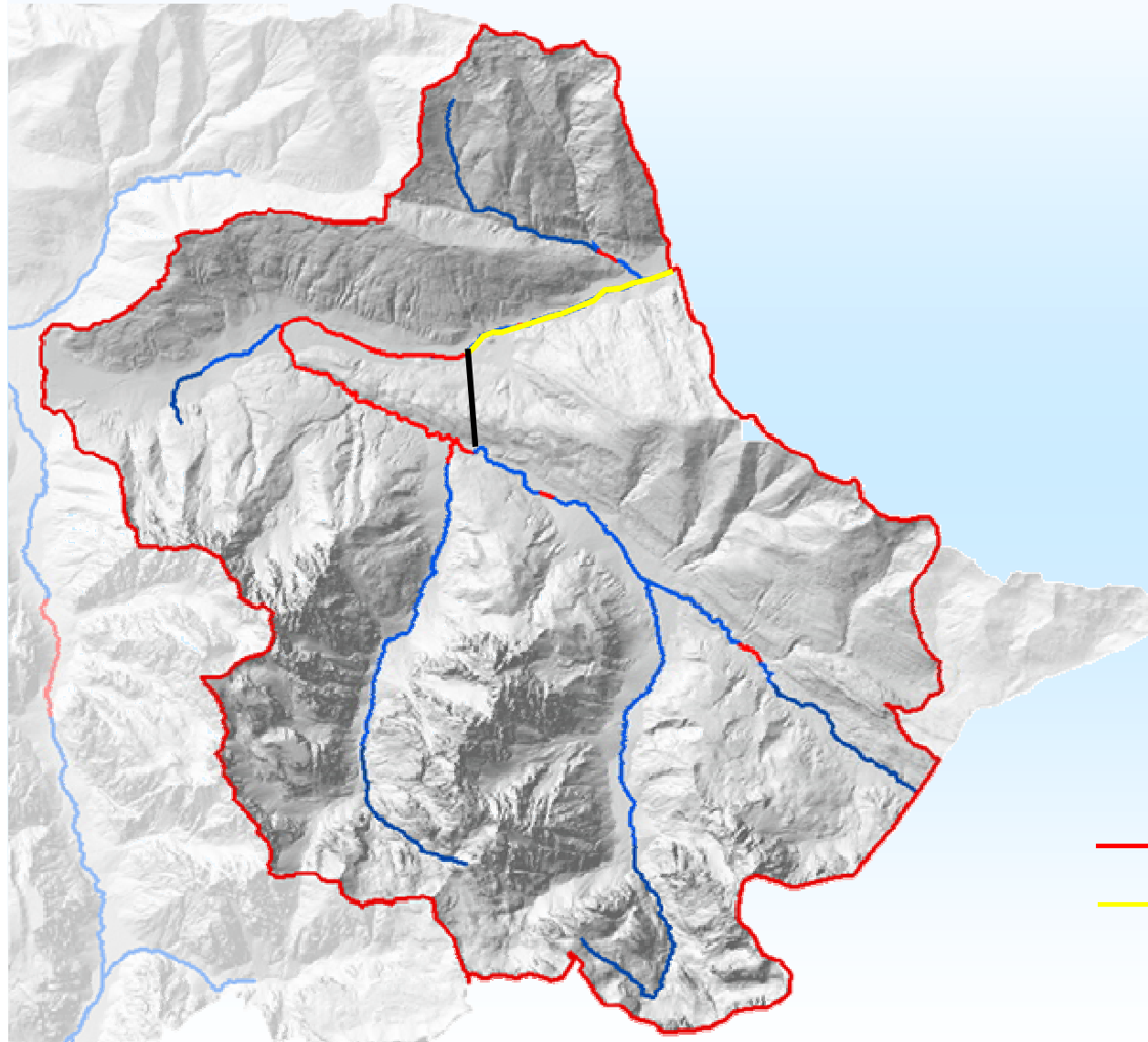


Flush upsurge operations








Utilization of the water resource



- Residual flow tracts
- Flush – upsurge operations

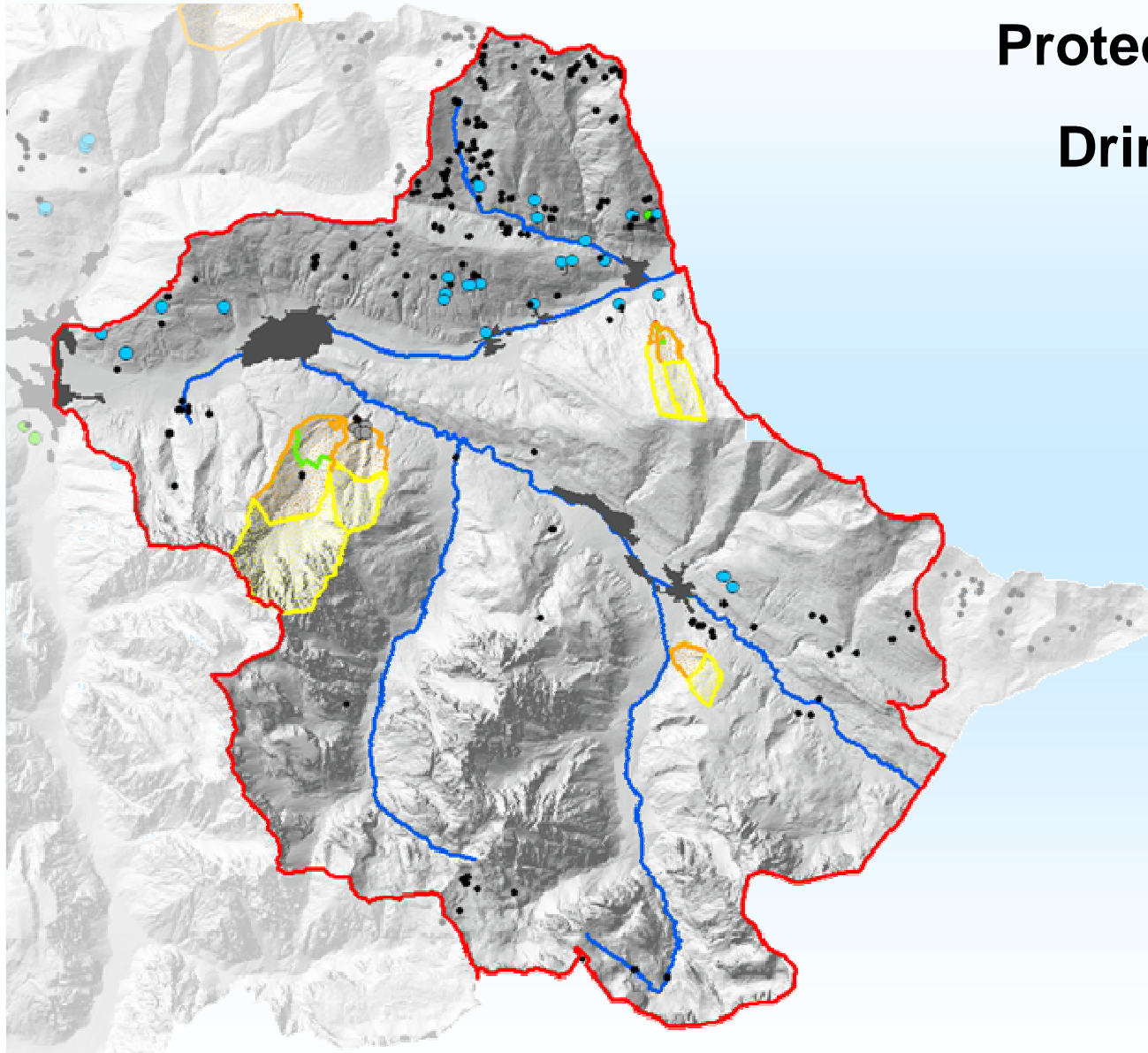


Protected areas for Drinking water

-  Zone I
-  Zone II
-  Zone III

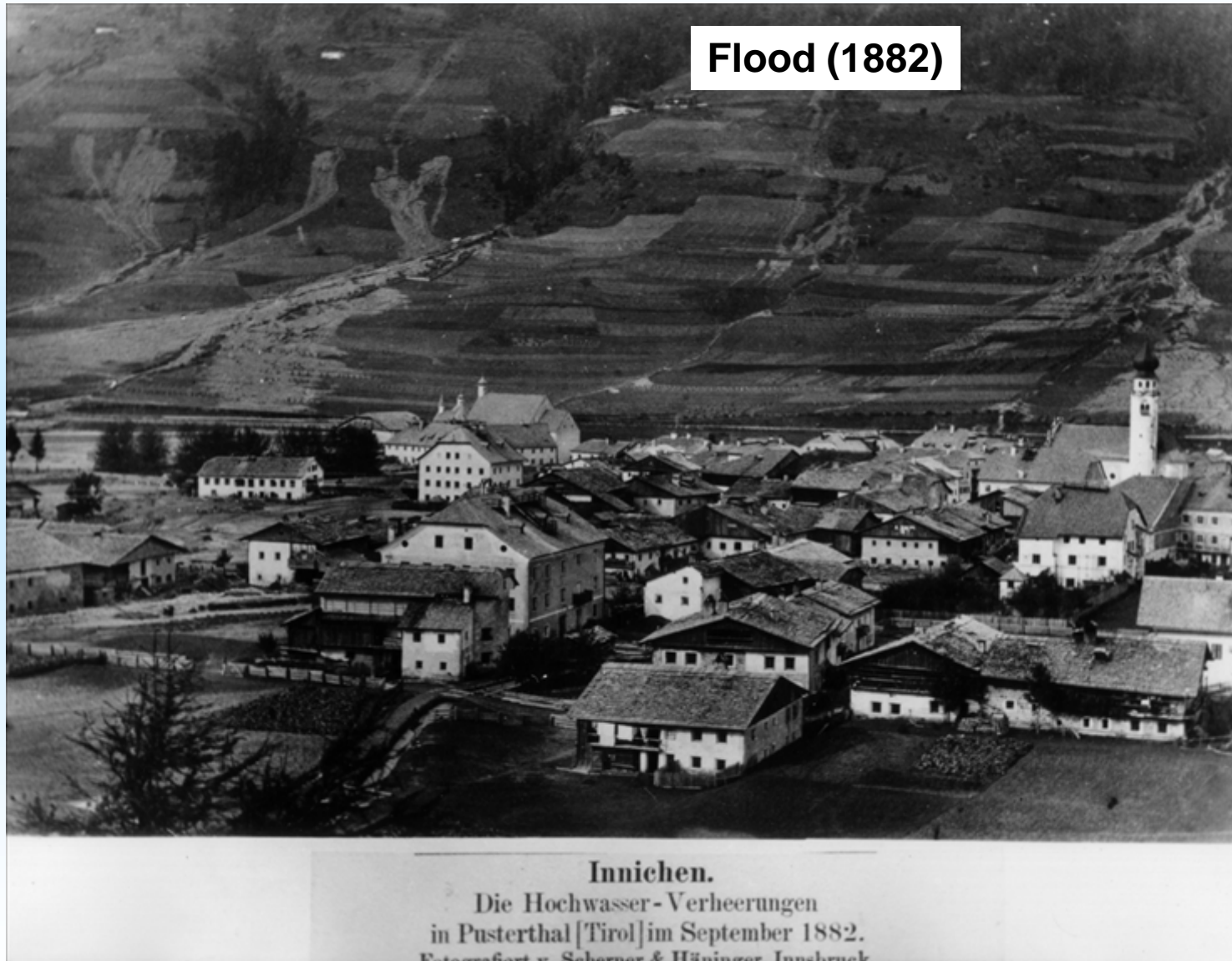
Sources

-  Drinking water
-  Industry
-  Agriculture
-  **Not exploited**





Water-related hazards



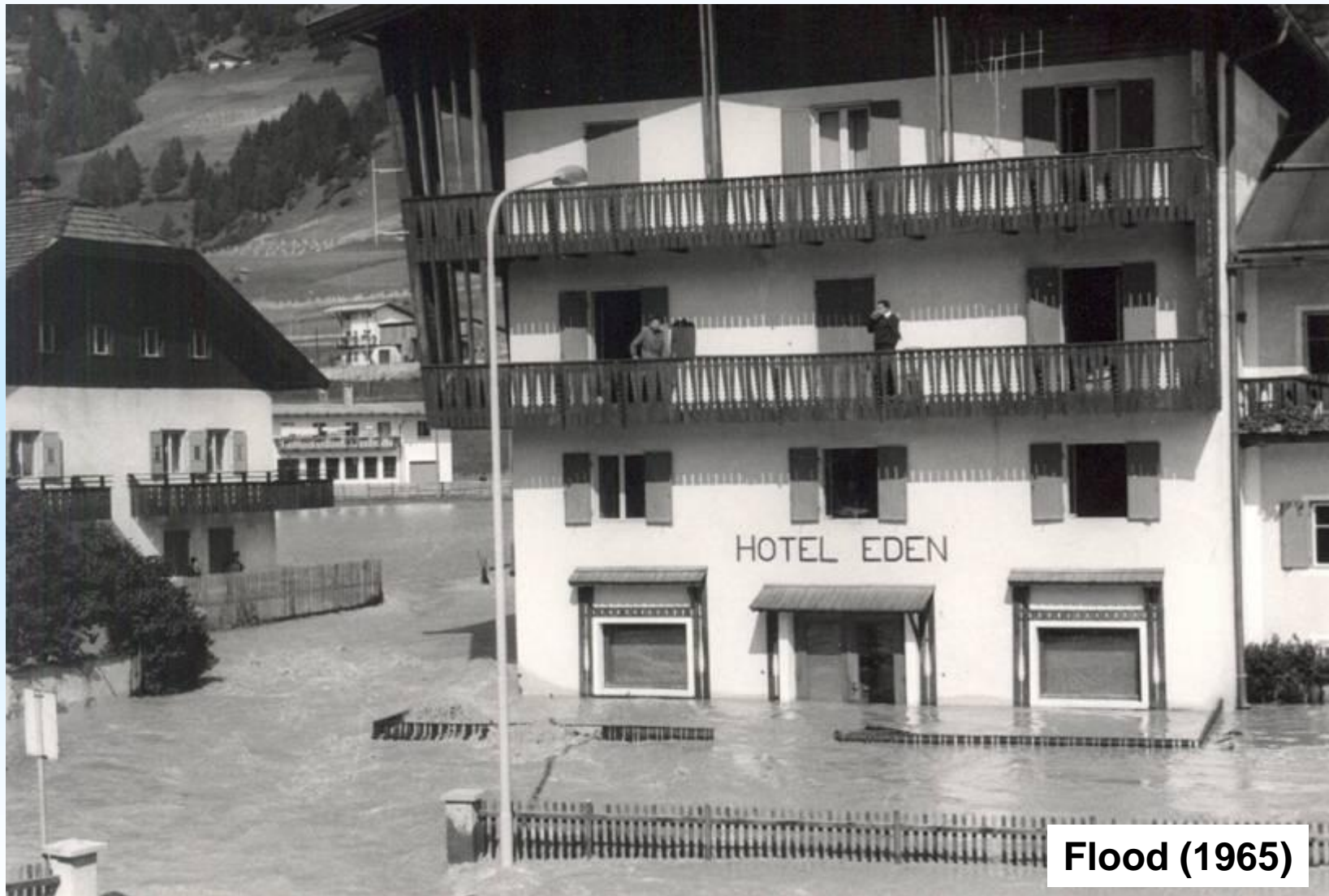


Water-related hazards





Water-related hazards





Baukat30: an overview of the protection measures



Drau



Sextnerbach





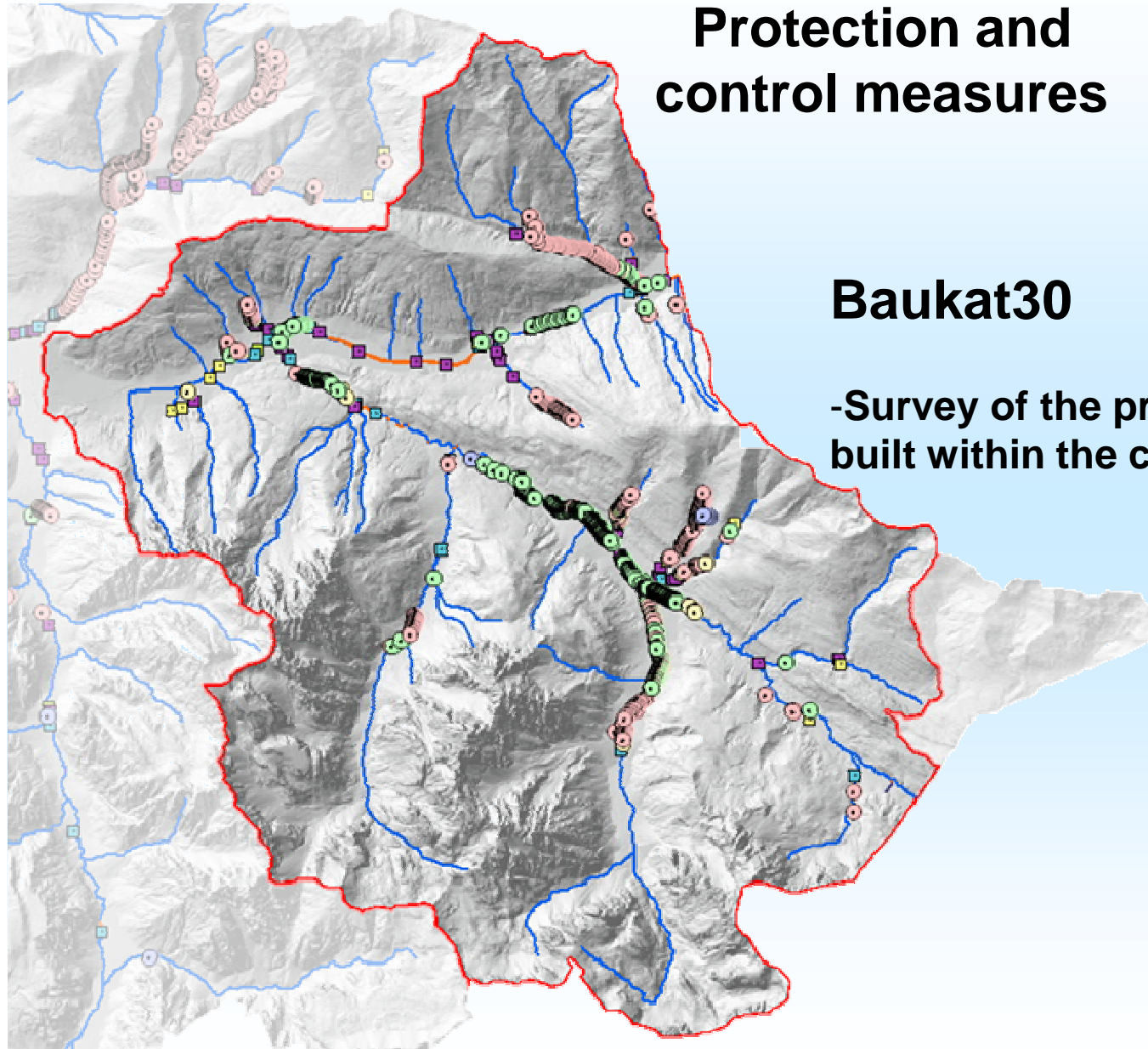


Baukat30

The screenshot displays the ArcView GIS 3.2a interface. The main window shows a map of the Drava River with various engineering structures marked. The legend on the left lists several layers, including 'Briglie' (weirs) and 'Argini' (levees). Two inset images show photographs of river structures: a dam (24070117.jpg) and a weir (24070119.jpg). A dialog box titled 'Maschera base : Formular' is open, displaying a 'Catasto delle opere della Drava' with buttons for different types of structures: Argini, Difese elastiche, Briglie, Muri di sponda, Cunette, Ponti, Solterraneo, and Selciati.



Protection and control measures



Baukat30

-Survey of the protection measures
built within the catchment



ED 30 history

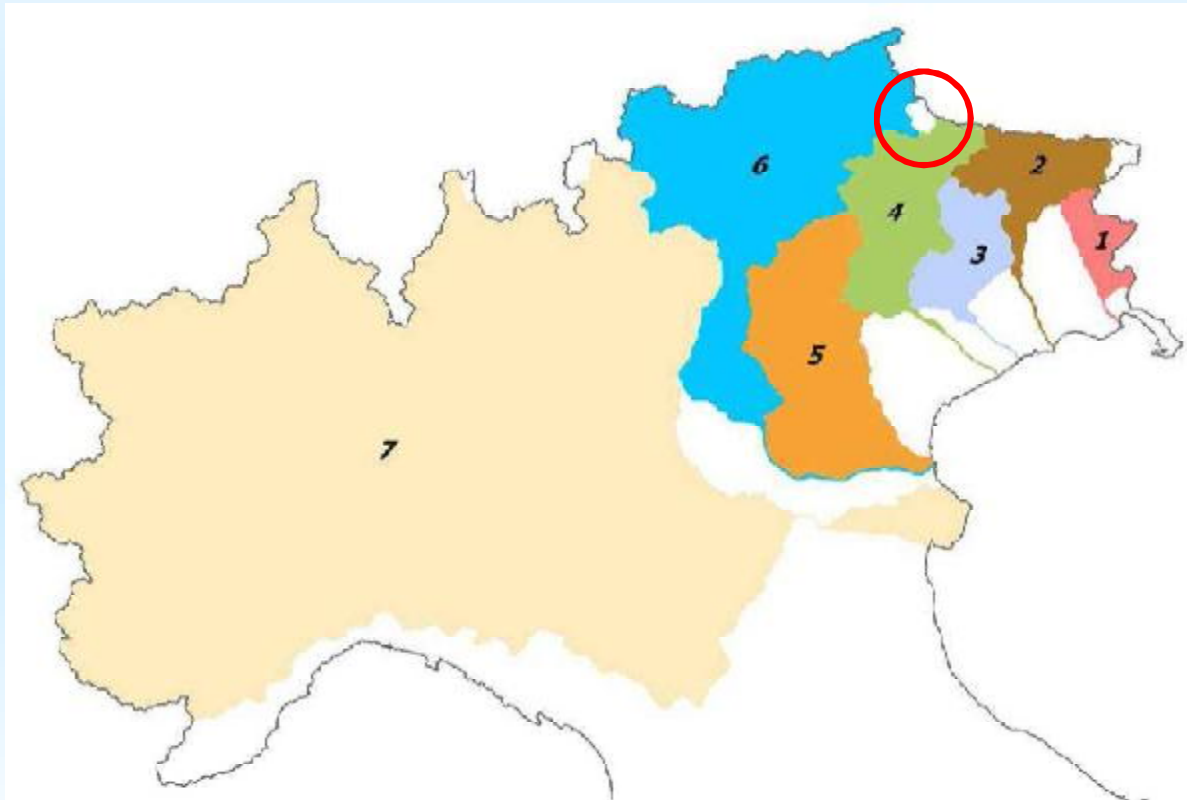


Flood (1965)

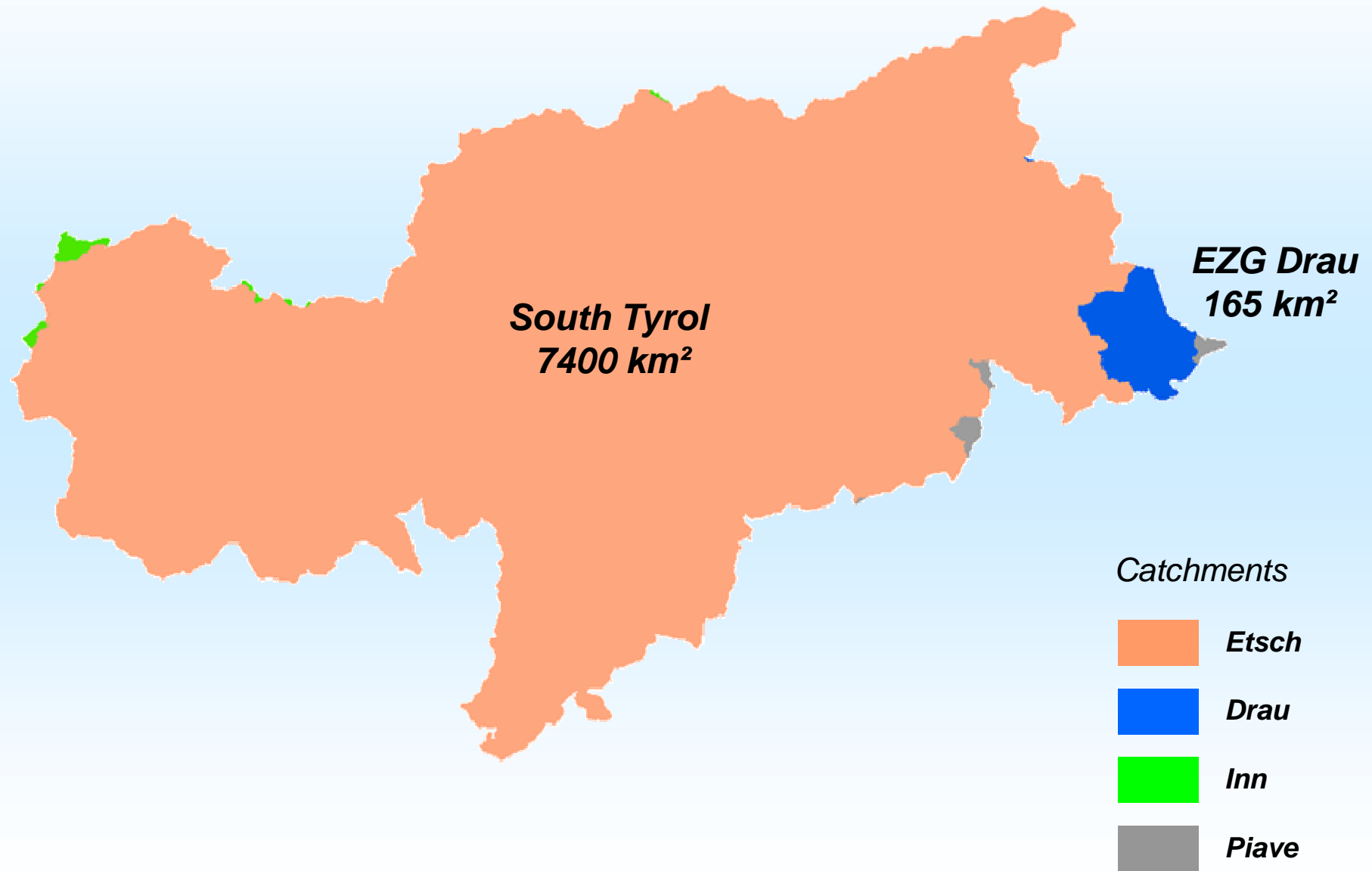


Water utilization plan

Catchments by law 183 / 1989



1. Isonzo
2. Tagliamento
3. Livenza
4. Piave
5. Brenta – Bacchiglione
6. Etsch
7. Po





Water utilization plan

The water utilization plan is a higher level planning document, which includes essential guidelines for the integral water management.

This document represents the outcome of the legal boundary conditions and strategic considerations for the watercourse development in South Tyrol

The Plan has to go through an agreement procedure among the state and the neighboring regions and has the validity of a constitutional law

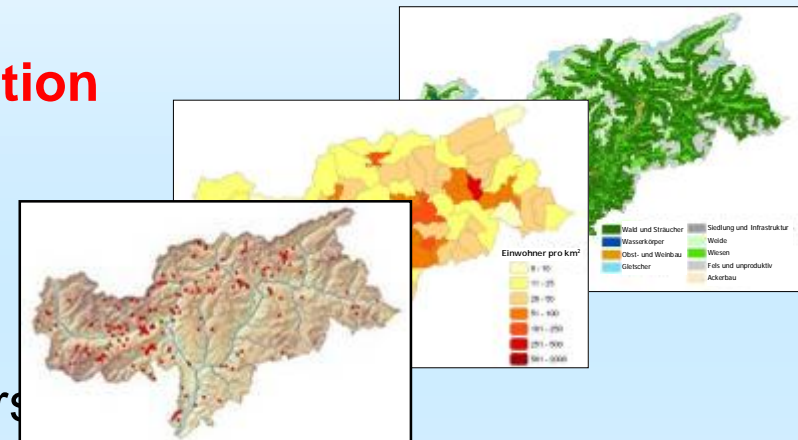


Structure of the water utilization plan and general regulations

The water utilization plan has two parts:

part 1 – description of the actual situation

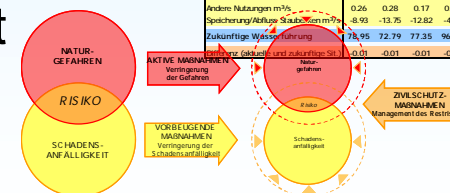
- Geographical conditions
- Population and land use
- Existing water utilizations
- Hydro-geological safety
- Ecological conditions of the watercourse

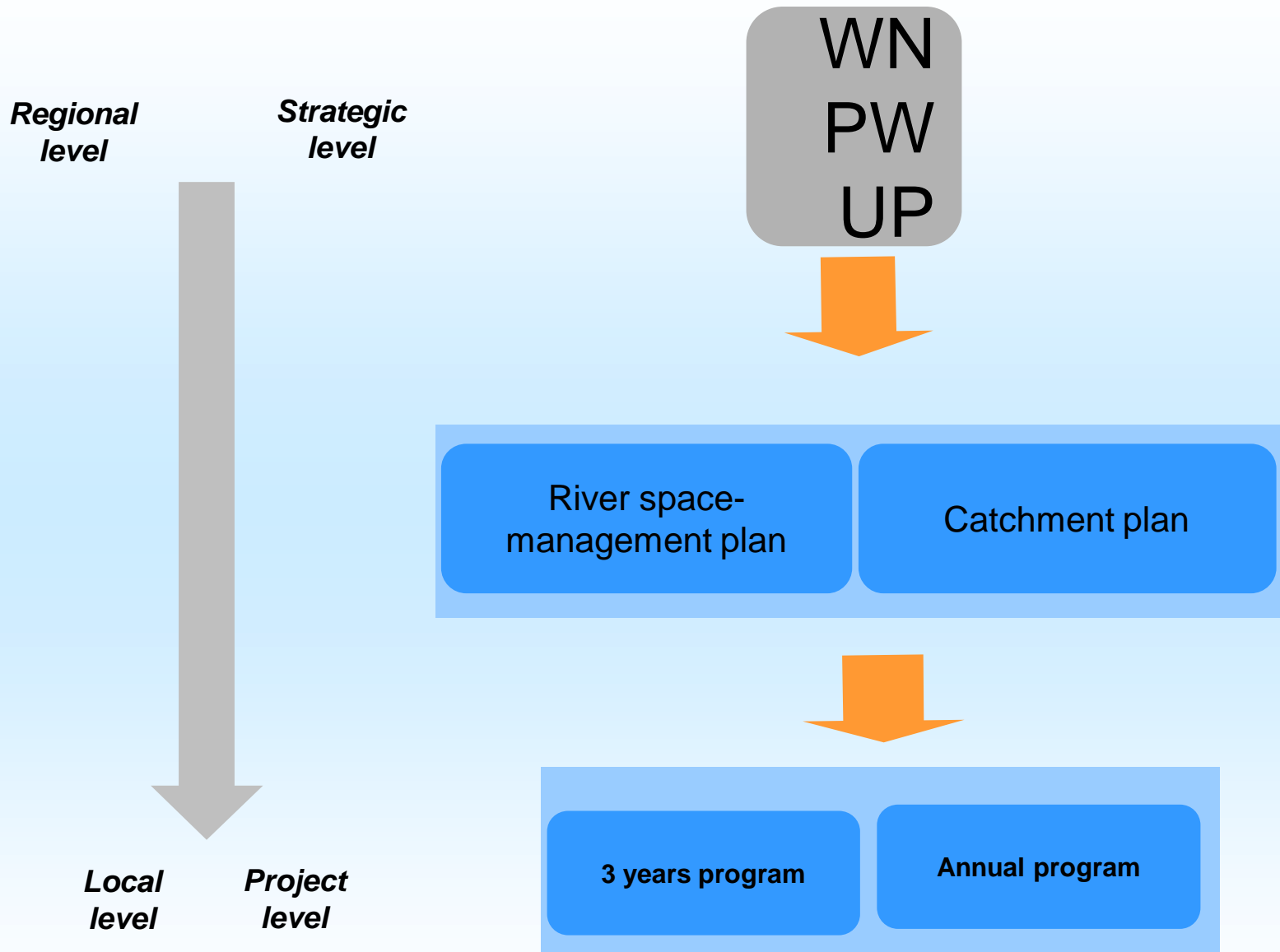


part 2 – goals and management criteria

- Ecological goals and measures
- Resource utilization criteria
- Water-balance
- Hydro-geological hazard management

Wassereinzugsgebiet der Etsch in der Provinz Bozen (7370 km²)	Mittlerer monatlicher Abfluss (m³/s)												Q _{max} (m³/s)
	Q ₁	Q ₂	Q ₃	Q ₄	Q ₅	Q ₆	Q ₇	Q ₈	Q ₉	Q ₁₀	Q ₁₁	Q ₁₂	
Aktueller Abfluss hydrologische Daten	78.96	72.80	77.36	96.91	225.40	290.00	255.45	184.94	153.03	159.09	135.65	95.02	152.05
Ländereischnitt m³/s	0.00	0.00	0.00	4.51	6.96	13.80	13.39	9.64	5.53	2.68	0.00	0.00	4.71
Andere Nutzungen m³/s	0.24	0.27	0.16	0.21	0.29	0.44	0.43	0.35	0.28	0.21	0.25	0.24	0.26
Speicherung/Abfluss Staubecken m³/s	-8.93	-13.75	-12.82	-4.34	9.22	28.78	10.96	10.88	-0.79	-4.11	-6.43	-9.44	0.26
Natürlicher Abfluss	70.27	59.32	64.71	97.29	241.87	333.06	280.23	205.82	158.06	157.87	129.47	85.83	157.05
Zukünftige Entnahmen	0.00	0.00	0.00	4.84	7.46	14.82	14.34	10.33	5.93	2.87	0.00	0.00	5.05
Ländereischnitt m³/s	0.26	0.28	0.17	0.22	0.31	0.47	0.45	0.37	0.30	0.22	0.26	0.26	0.30
Andere Nutzungen m³/s	-8.93	-13.75	-12.82	-4.34	9.22	28.78	10.96	10.88	-0.79	-4.11	-6.43	-9.44	0.26
Speicherung/Abfluss Staubecken m³/s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Zukünftige Wasserverführung	77.95	72.79	77.35	96.58	224.89	288.99	254.47	184.24	152.62	158.89	135.64	95.01	151.70
Speicherung/Abfluss und zukünftige Sit...	-0.01	-0.01	-0.01	-0.33	-0.51	-1.01	-0.98	-0.71	-0.41	-0.20	-0.01	-0.01	-0.26

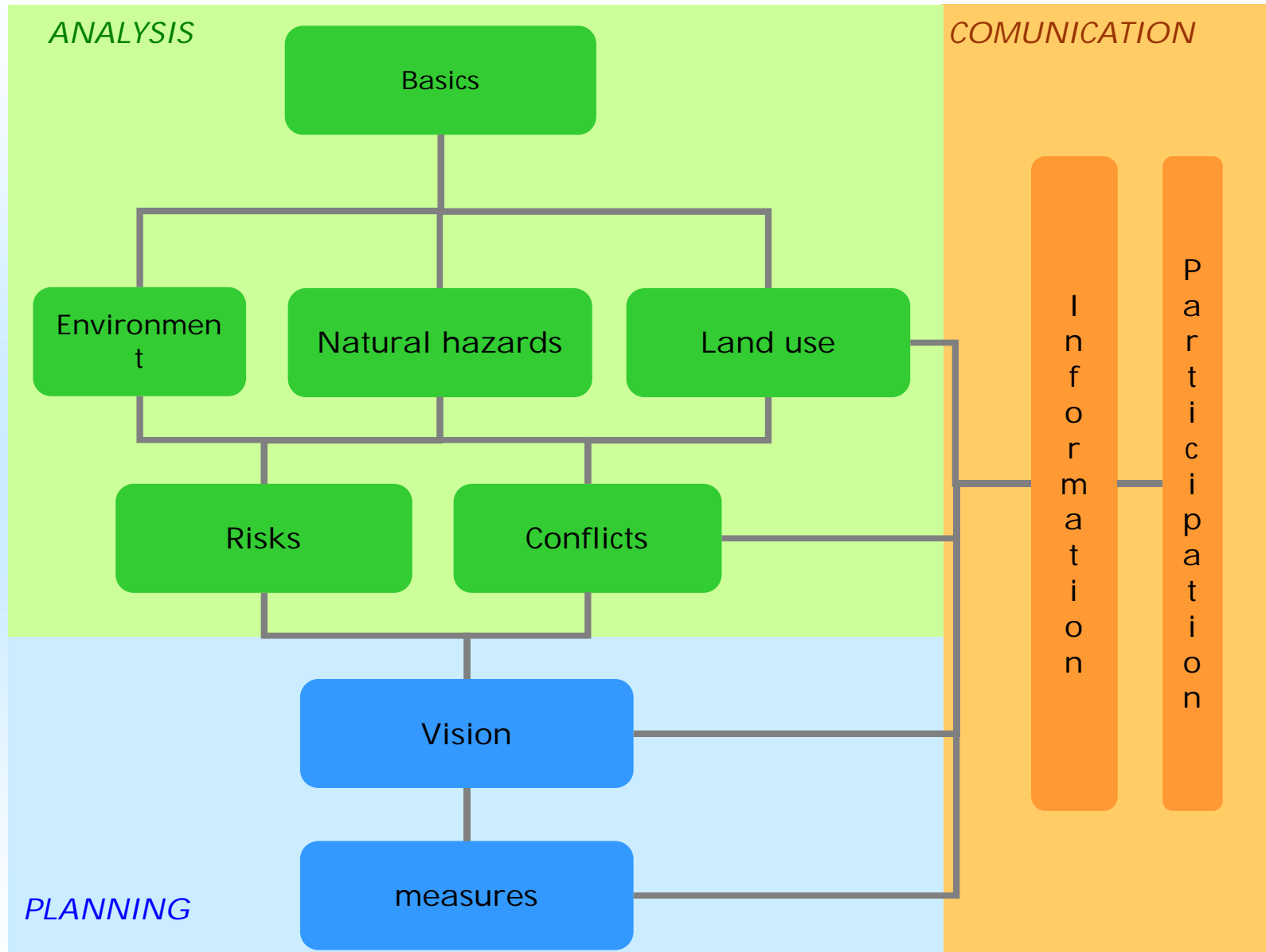






River space management plan

- **Holistic view of the river space on a catchment level**
- **The population has to be protected against extreme events**
- **Essential improvements concerning ecology and recreation**
- **Coordination between economic and social development**





Sustainable development of the Drava River and its surroundings

- **Integral river management**
- Hazard maps
- Expansion of the warning system
- Flood retention at floodplain level
- Protection zones
- Renaturalization and reconfiguration measures
- Removal of obstacles
- Utilization of the Drava River as recreation area
- Information and communication
- International cooperation

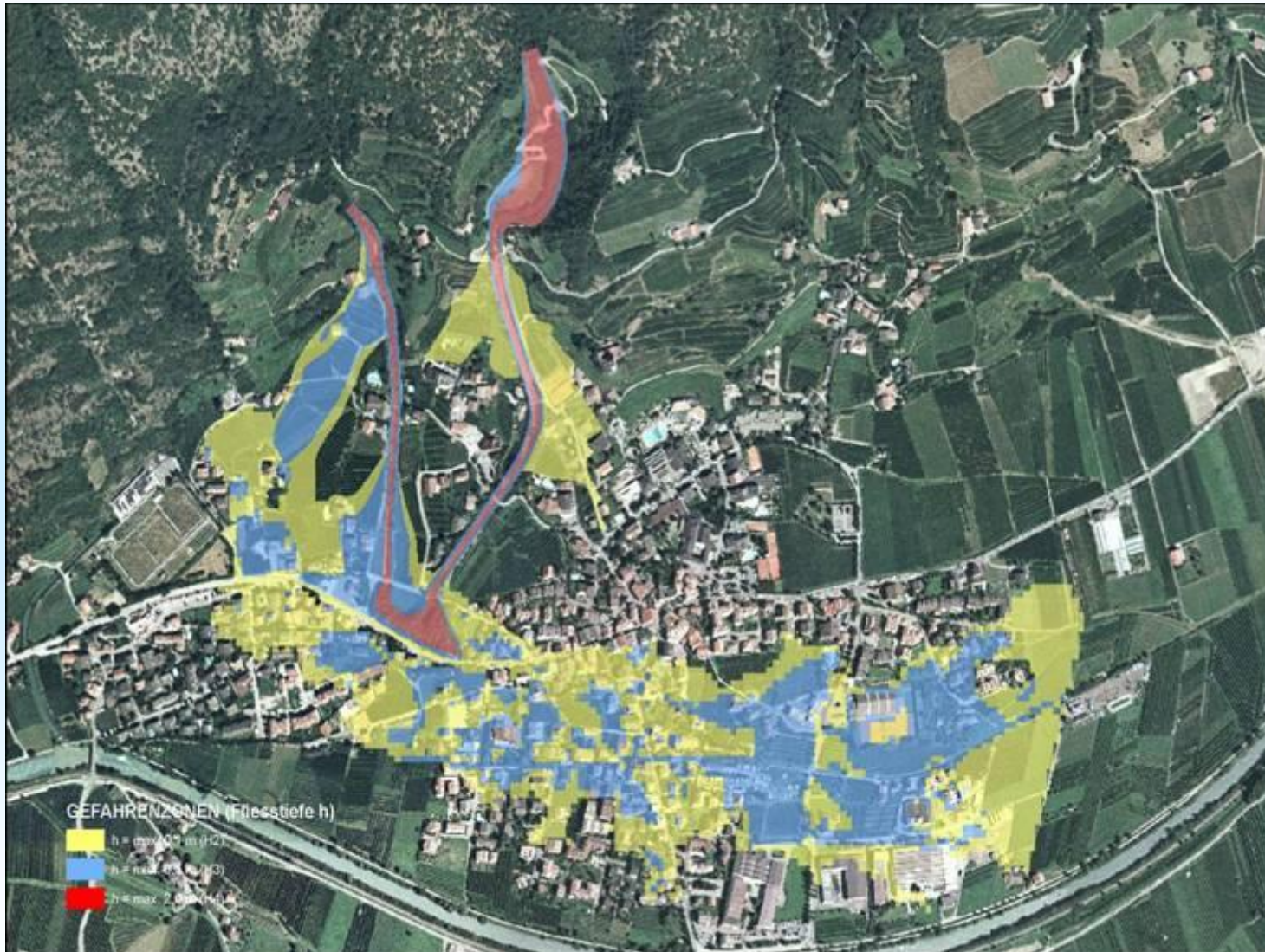


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Hazard Mapping





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Environment & Landscape





Obstacles





Sustainable development of the Drava River and its surroundings

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- **Information and participation**
- International cooperation



Information and participation





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- Removal of obstacles
- Utilization of the Drava River as recreation area
- Information and communication
- **International cooperation**

**We are sitting nearby the source.
But we want to know "where" the water is going to flow**

