Interreg

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Danube Transnational Programme

CAMARO-D

Transnational review report of existing BMP

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Contents

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1 Checklist of land-use practices for BMP

The checklist was provided to all project partners in order to map the situation in participating countries within Danube region. The information was collected at national level, concerning Best Management Practices for drinking water protection and flood prevention, to control water pollution (and generally water regime of the landscape) from non-point pollution sources from agriculture, forestry and grassland management and the corresponding spatial planning measures in CAMARO-D countries.

Twelve areas of BMP implementation were mapped (Table 1). Altogether 202 Best Management Practices were identified within 12 segments of land management. The numbers within the segments (Table 1) and relative share of total 202 BMP are presented (Figure 1).

Table 1: Numbers of identified BMPs in activity segments.

BMP activity segments	Number of BMPs within segment
A - Arable Agriculture (cropping systems)	36
B - Grass Agriculture (all permanent cultures)	20
C – Forestry	43
D - Water Management	24
E - Spatial Planning	8
F – Technical Measures (TM) in Agriculture	12
G - Technical Measures (TM) in Forestry	5
H - Technical Measures (TM) in Water Management	10
I - Technical Measures (TM) in Spatial Planning	18
J - Land Consolidation Projects (strategies)	7
K – Surface Water (SW) Protection Zones	10
L – Ground Water (GW) Protection Zones	9

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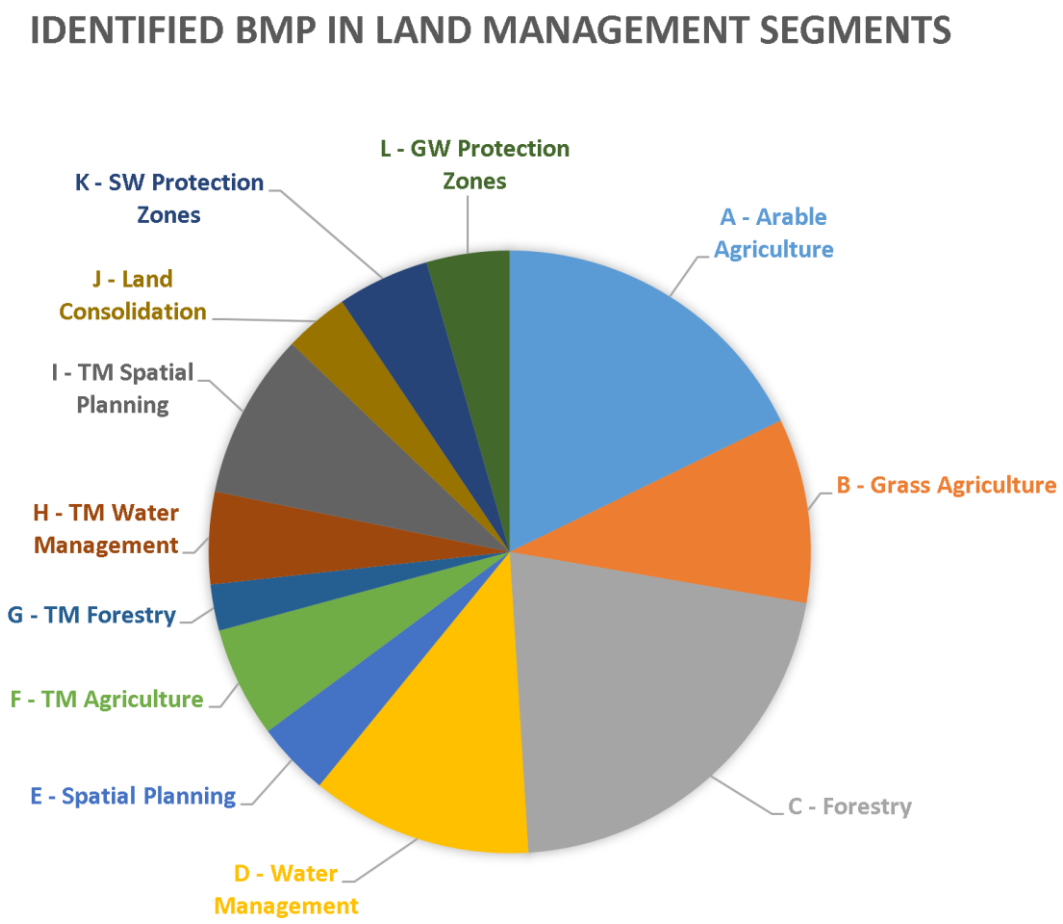

Figure 1: Number of Best Management Practices identified within land management segments.

The identified practices were assessed by project partners concerning their frequency of use as:

L (Low)	– rare frequency of use
N (Normal)	– occasional use, under suitable conditions
H (High)	– frequent use, typical measure or management strategy

In the checklist, for used practices the project partners identified frequency for all used practices (BMPs) within their countries. The frequency was not marked in the case when the BMP is not used within the country at all. Nine countries and 202 BMPs put altogether 1818 potential answers to the questionnaire if all BMPs are used in all countries. 1793 answers were collected from 8 partners.

2 Frequency of use of the Best Management Practices

Each of the 202 identified Best Management Practices was by every country classified by occurrence as:

L (Low)	– rare frequency of use
N (Normal)	– occasional use, under suitable conditions
H (High)	– frequent use, typical management strategy or measure

2.1 General overview of frequency of use of BMP

By the occurrence the practices were then sorted – again in total but also in every land management segment of activities. In the following text, the mostly occurring practices will be emphasized (as having the highest impact on land management under current conditions). But all the other BMPs should not be omitted or considered as inappropriate. They still can be used and are used under specific conditions or in particular regions.

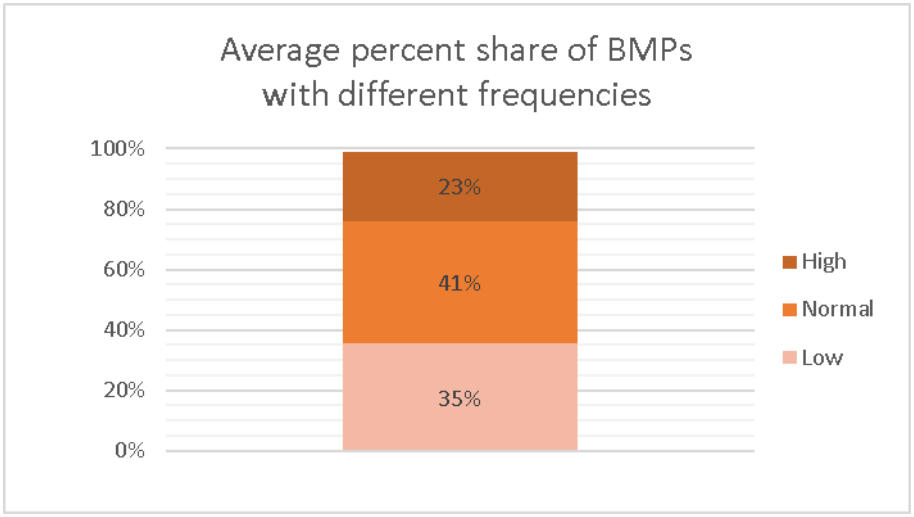

Figure 2: Average proportion of frequencies of use of BMPs in Danube region.

From the total number of 202 identified BMPs in Danube region, on average 45 practices (23%) occur frequently. 87 practices (42%) on average occur normally and 66 practices (34%) occur rarely (Figure 2).

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In different countries, the frequencies of use are variable due to national, economical, legislative, and environmental specifics (Figure 3).

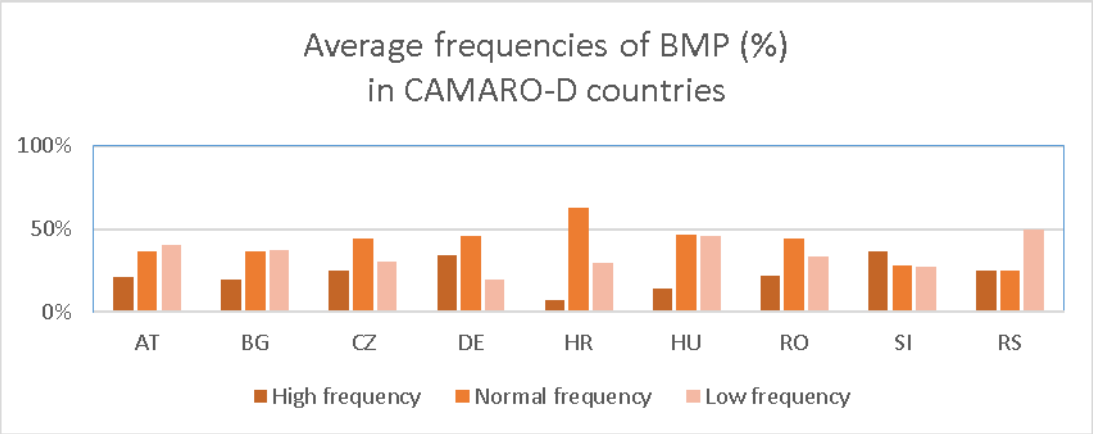

Figure 3: Average frequencies of practices (%) in CAMARO-D countries

The countries with high percentage of the frequently applied BMPs are Slovenia, Germany, followed by Czechia, Austria, and Romania. The countries with low frequency of BMPs are Hungary, Bulgaria and Serbia (Table 2).

Table 2: Average frequencies of practices (%) in CAMARO-D countries.

Country	AT	BG	CZ	DE	HR	HU	RO	SI	RS
High frequency	21%	20%	25%	34%	7%	14%	22%	37%	25%
Normal frequency	37%	37%	45%	46%	63%	47%	44%	28%	25%
Low frequency	40%	38%	30%	19%	30%	46%	33%	27%	50%

2.2 Frequencies of use of practices in land management segments

In detailed view, we again see that individual countries have different segments with different frequencies of use. These will be only listed in graph (Figure 4) and table (

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Table 3) without further comments and we will focus on selecting particular most frequently used practices in next chapter.

Table 3: Percent of practice frequencies in different segments for CAMARO-D countries.

Country		AT	BG	CZ	DE	HR	HU	RO	SI	RS
A - Arable Agriculture	H	25%	6%	28%	33%	8%	22%	3%	31%	14%
	N	36%	47%	39%	22%	64%	17%	33%	6%	17%
	L	39%	39%	33%	44%	28%	56%	64%	64%	69%
B - Grass Agriculture	H	35%	25%	5%	20%	0%	10%	20%	25%	30%
	N	45%	35%	55%	50%	35%	75%	35%	40%	20%
	L	20%	30%	35%	25%	65%	55%	45%	20%	50%
C - Forestry	H	9%	33%	14%	35%	7%	12%	47%	47%	47%
	N	42%	44%	53%	51%	77%	77%	44%	19%	19%
	L	49%	21%	33%	14%	16%	23%	7%	12%	35%
D - Water Management	H	21%	21%	17%	58%	8%	17%	29%	46%	8%
	N	50%	38%	63%	42%	58%	38%	54%	33%	17%
	L	25%	42%	21%	0%	33%	54%	17%	8%	75%
E - Spatial Planning	H	25%	13%	25%	63%	50%	0%	25%	63%	38%
	N	25%	38%	50%	38%	50%	75%	75%	25%	25%
	L	50%	50%	25%	0%	0%	38%	0%	13%	38%
F - TM Agriculture	H	0%	0%	8%	8%	17%	0%	8%	17%	8%
	N	33%	25%	33%	67%	42%	8%	58%	42%	25%
	L	67%	50%	58%	25%	42%	92%	33%	42%	67%
G - TM Forestry	H	20%	0%	0%	0%	20%	0%	0%	0%	0%
	N	20%	20%	40%	60%	40%	20%	20%	60%	40%
	L	60%	80%	60%	40%	40%	80%	80%	40%	60%
H - TM Water Management	H	10%	20%	30%	0%	0%	40%	0%	20%	20%
	N	30%	20%	40%	70%	60%	30%	10%	40%	20%
	L	60%	60%	30%	30%	40%	30%	90%	40%	60%
I - TM Spatial Planning	H	6%	17%	22%	22%	0%	0%	6%	39%	17%
	N	28%	33%	39%	67%	78%	50%	56%	33%	28%
	L	56%	39%	39%	6%	22%	50%	39%	22%	56%
J - Land Consolidation	H	0%	0%	43%	43%	0%	0%	0%	14%	29%
	N	71%	14%	57%	14%	71%	43%	43%	71%	57%
	L	29%	86%	0%	43%	29%	57%	43%	14%	14%
K - SW Protection Zones	H	50%	30%	80%	60%	0%	50%	50%	50%	40%
	N	20%	50%	10%	40%	80%	20%	40%	30%	60%
	L	20%	20%	10%	0%	20%	30%	10%	20%	0%
L - GW Protection Zones	H	89%	56%	89%	56%	0%	11%	33%	56%	33%
	N	0%	11%	11%	44%	67%	67%	67%	22%	44%
	L	11%	22%	0%	0%	33%	11%	0%	22%	22%

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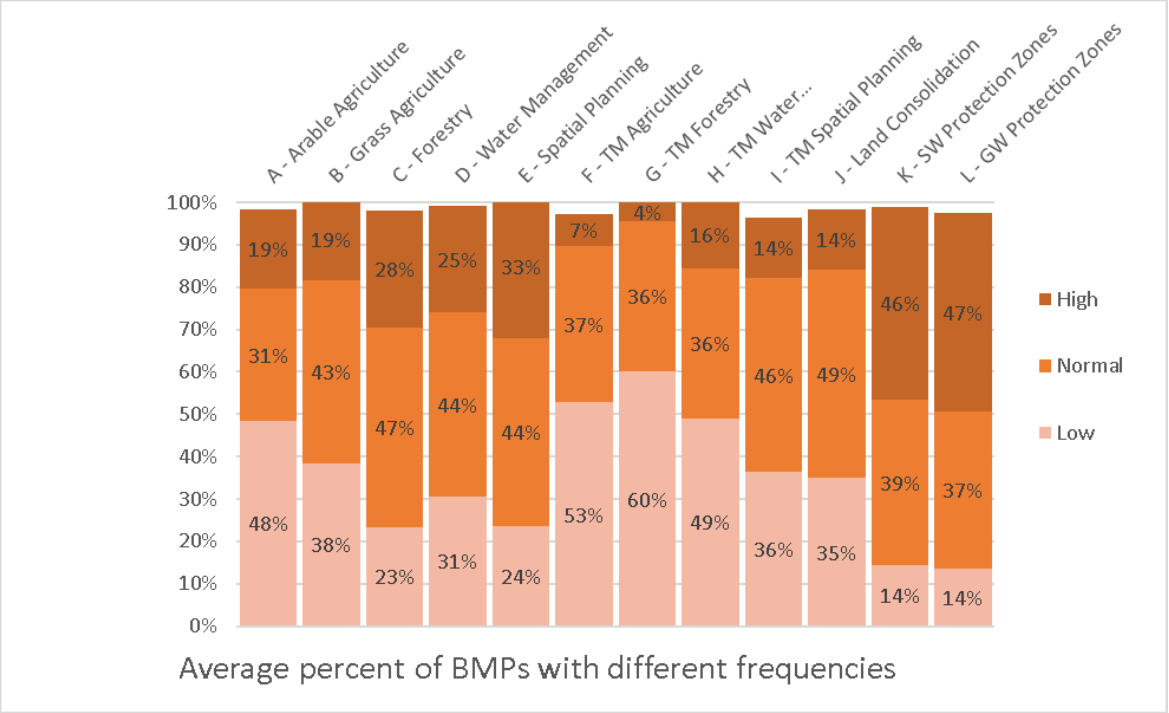

Figure 4: Average number of practices with different frequencies in land management segments.

2.3 Most frequently used Best Management Practices

To identify most frequently used practices an **index of frequency** of use was proposed. At first the frequency of use replied for every CAMARO-D country separately in the categories N and H were summarized. Category L (rare use) was omitted in searching for frequently used practices. The frequency index for each practice is then computed as:

$$IF = (100 \times H + 20 \times N) / 9$$

IF index of frequency
H sum of occurrences in high frequency category for 9 CAMARO-D countries
N sum of occurrences in normal frequency category for 9 CAMARO-D countries

The index counts with 100% application of high frequently used practices (as typical practice for the region and land management category) and for 20% potential application of normally used practices (defined as used only under suitable conditions). Division by 9 is normalization of the index for nine CAMARO-D participant countries.

The index of frequency can reach maximum of 100 if every country would mark the identified practice as highly frequent. For every country marking the practice as “rare” the index would

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reach zero (0). This happened for four of the 202 practices: A 6 - No tillage; A 12 - Mobile retention elements (dams made of straw, …); A 15 - Precision agriculture; G 3 - Road removal.

For none of the 202 practices the index reached 100, maximal reached value was 80, which induces on the rather high variability of land management of the whole Danube region. Index of frequency is listed for every practice in the full list of the practices listed from the most frequent to the least frequent in Danube countries (Table 5).

Three practices are used with high frequency in seven CAMARO-D countries, having the Index of Frequency 80. These are connected to Water Protection Zones: K4 (Monitoring of surface waters); K7 (Defining areas for the protection of aquatic species); L4 (Monitoring of groundwater).

Distribution of frequency of use without looking at different segments can be seen in APPENDIX 1.

2.4 Most frequently used practices in land management segments

To identify most frequently used practices an **index of frequency** of use was used. The practices were then listed from most to less used not only as a whole list but also for the 12 land management segments separately. Results for all BMPs in every segment listed from most frequent in CAMARO-D region is presented in APPENDIX 2.

From the tables in APPENDIX 2 we can conclude the most used and therefore most significant practices over the whole DANUBE region in each segment (Table 4).

Table 4: Most frequent Best Management Practices in land management segments in Danube countries

Segment	No.	Description	Frequently used
A - Arable Agriculture	A 28	Fertilizer application plan	AT CZ DE HU SI
	A 32	Fertilizer application inspection	AT BG CZ DE HU
	A 9	Stubble burning strictly prohibited	AT BG CZ DE HU
B - Grass Agriculture	B 19	Sustainable agriculture in nature-protected areas	AT BG HU RO
	B 12	Establishment of advisory services	AT RO SI
	B 7	Well-fare practices at grazing	BG DE HU
C - Forestry	C 42	Forest fire prevention	AT BG HR HU RO
	C 11	Policy and legislation initiatives	AT BG HU RO SI RS
	C 7	Establishment of protective forests	BG DE RO SI RS
D - Water	D 4	Establishment of sanitary protection zones (DWPZ)	AT BG CZ HU RO SI RS

Segment	No.	Description	Frequently used
Management	D 9	Flood Risks Management Plans	AT BG DE RO
	D 16	Designation of protected ground water areas	CZ DE RO SI RS
E - Spatial Planning	E 8	Incorporation of water management plans into physical (spatial) planning	AT DE HR RO SI
	E 2	Wide discussion process including local activities and stake-holders	BG HR RO SI
	E 6	Land reservation for potential drinking water sources	AT DE HR SI RS
F - TM Agriculture	F 12	Flood control canals, lateral canals and connecting canals	CZ HR SI RS
	F 1	Ditches	HR RO
	F 11	Retarding basins	DE SI
G - TM Forestry	G 2	Road runoff	AT HR
	G 5	Rehabilitation and recultivation of damaged forest terrains	
	G 1	Retention pools	
H - TM Water Management	H 4	Flood control dams and levees	AT CZ HU SI RS
	H 5	Floodplains protection – to spill and store (flood wave transform) flood water	BG HU SI
	H 6	Restoration of wetlands areas	HU
I - TM Spatial Planning	I 17	Zones with high potential flood-risks have closure for constructing activities	BG CZ SI
	I 1	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures	BG DE SI RS
	I 6	Strict incorporation of complete waste water treatment plant into each settlement	AT CZ SI
J - Land Consolidation	J 4	Permanent grassing	CZ DE
	J 5	Permanent afforestation	DE
	J 3	Modified crop rotation	CZ
K - SW Protection Zones	K 4	Monitoring of surface waters	AT BG CZ DE HU RO SI RS
	K 7	Defining areas for the protection of aquatic species	AT BG CZ DE HU RO SI RS
	K 8	Identifying protected areas for habitats and species where water is an important factor	CZ DE HU RO SI RS
L - GW Protection Zones	L 4	Monitoring of groundwater	AT BG CZ DE HU RO SI RS
	L 3	Integration of groundwater protection zones into spatial planning	AT BG CZ DE SI RS
	L 5	Prevention of direct wastewater discharge into groundwater	AT BG CZ DE SI RS

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3 Conclusion

Above presented statistics and graphs are indicative. The practices were added by different countries and for many of them the use is regionally limited. Converting them into % graphs means that we compare different systems what makes the comparison unbalanced in many cases. This should be clarified by national specific analyses following this first step.

Concluded from above we propose to see the presented figures and numbers as “potentials”. This way the situation would look like if all BMPs identified by project members were equally used in all CAMARO-D countries and have equal impact in various regions.

With all the weak points of the introductory analysis we believe it shows potential image of share of different segments in individual countries concerning number of Best Management Practices existing.

From the BMP analysis based on questionnaire we can conclude that 202 Best Management Practices were identified in within CAMARO-D countries, having impact on all segments of environment related to water.

The situation in Danube countries even in unified Europe remains highly variable due to both natural and land management conditions. The Best Management Practices and optimization of their use should be kept on the agenda in stakeholder communications within all Danube regions.

The high and normal frequency of practices and comparison to other countries are presented in APPENDIX 3 and APPENDIX 4.

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4 Nation specific comments

4.1 Austria

Agriculture – cropping systems

More than 30 % of the Austrian territory is used for agriculture. More than 173,000 farmers cultivate a total area of 7.34 Mio. ha with an average farm size of about 19.3 ha. Most of the area is cultivated through feed crop farms ("Futterbaubetriebe"), whereas cash crop farms ("Marktfruchtbetriebe") (e.g. grain, sugar beet growing) and also permanent crops ("Dauerkulturbetriebe") (wine, intensive fruit growing) are mainly widespread within the eastern Danube area. Grain growing is the dominant agriculture within almost all areas in Austria. Maize is mainly cultivated in the Eastern and Southern part of Austria. The amount of organic farming in Austria is the highest within the EU – 20 % of agricultural areas (14.5 % of cropland, 26 % of grassland). Due to favourable climatic and hydrological conditions only about 2.3 % of the agricultural areas have to be irrigated.

Practices with "low frequency":

Contour cultivation and stripping as well as *precision agriculture* are difficult to implement due to the mostly small structured agriculture in Austria.

No tillage is highly effective, but as this kind of cultivation needs special equipment, only large farms can implement it.

Mobile retention elements are not so often used in Austria. Linear retention features (living / dead hedges), that are placed temporarily or semi-permanently across concentrated surface runoff flow paths within smaller sub-catchment areas, reduce flow velocity and create temporary retention. They may act as buffer element to smooth runoff peaks for surface runoff. These retentions features do not have a very high effectivity but they have relatively little implementation costs.

Maintaining uncultivated arable land after harvesting (at least 20%) would potentially decrease soil erosion, but is not common in Austria. On fields with former crop- (only particular crops, otherwise agronomic disadvantages) and especially grain-cultivation subsidies to maintain these fields uncultivated for a certain period could be useful.

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The use of mixed crops and *the cultivation of a greater number of varieties* would maintain soil quality and decrease soil loss, but are not often applied in Austria, because the benefit to cultivate different varieties of the same crop cannot be seen. The use of mixed crops could be interesting for some cultivation (like maize and bean for example), but has to be further investigated towards appropriate cultivation technique and especially harvesting technology.

Grassed water ways are very effective, if they are implemented properly. This measure will be tested within CAMARO-D (Gnasbach catchment) as well as *combined seeding of cover crops and row crops*.

Practices with "normal frequency":

Vegetated buffer zones along water bodies are usual in Austria, although in recent times clear-cut applications can be observed in some regions as the danger of driftwood is seen more important as the protection from lateral erosion processes. Furthermore in areas with already high forest percentage additional implementation of vegetation is not well accepted and funded.

Non soil turning tillage will perhaps increase organic carbon content of upper soil layers, but the effect on the reduction of soil loss is relatively insignificant, whereas *conservation tillage* has a significant effect on soil loss.

Conservation crop rotation (soil erosion conservation) would be highly effective; a lot of slightly different measures are implemented in Austria.

Mulching is highly effective, but practically the effectiveness depends mainly on the particular technique of mulching. Also within the pilot Gnasbach catchment area the application of mulch drilling will be tested within CAMARO-D.

The amount of *organic farming* in Austria is the highest (about 20% of agricultural areas) within the EU. Apart from the prohibition of pesticides, insecticides and artificial fertilizers the use of less erosion prone crop rotations can be a great advantage for better soil and water quality. *Green fertilizers* as part of biological farming strategies reduce soil loss as part of improved rotation strategies.

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Fertilization with manure and compost are common in Austria and as the input and output of organic carbon is well balanced this procedure helps to maintain soil quality efficiently. On the other hand the storage capacities are sometimes insufficient (especially by pigs and poultry).

Winter crops on at least 20% of the total arable slope lands and combined with mulching or direct drilling are a very effective way to avoid soil erosion, especially during spring to early summer with most of the heavy precipitation events in Austria.

Considering *crop selection* studies and surveys are developed, especially in the context with increased drought problems in the future, to select the most resistant varieties with a high tolerance.

Fixed retention ponds are manmade structures that are built at crucial sites of concentrated runoff within catchments. They are designed to retain some portion of the superficially flowing water. Detailed knowledge about surface runoff pathways within catchments is a necessary prerequisite. Retention ponds are among the most expensive measures to retain water in catchments. When collecting surface water during rainfall events they may also collect large quantities of sediment, nutrients and undesired elements (heavy metals, pesticides….). This may increase maintenance costs. It is therefore highly important to combine the use of retention ponds with adequate measures to retain sediment already on agricultural land.

Reduced tillage depth and management depth of soil can improve soil quality, because of increasing organic matter content of upper soil layer.

<u>Practices with “high frequency”:</u>

Stubble burning in Austria is generally *prohibited*; only in some exceptional cases (e.g. disease and pest infested materials, frost protection within vineyards or orchards) it is allowed under controlled manner.

Fertilizer and pesticides application plans, monitoring and respective inspections are common in Austria and try to improve fertilisation effectiveness and water quality. Nevertheless in some areas with intensive agriculture (Upper Austria, Lower Austria, Styria, Burgenland) the thresholds are exceeded, partially because former applications, which are already prohibited (e.g. Atrazin) are still demonstrable.

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The application of *fertilizer and pesticides within DWPZ (Drinking water protection zones)* is mostly *limited* due to the relevant decree, which regulates the land-use and the respective prohibitions.

Agricultural advisory services (e.g. organized by the regional chambers of agriculture) are well established in Austria and help the farmers to fulfil all requirements and to maximise their profit within given rules and conditions. Trainings with farmers and representatives of regional agricultural authorities for example shall demonstrate the effectiveness of erosion control measures and raise the awareness for this topic within CAMARO-D (pilot area Gnasbach).

Agriculture – grasslands, permanent agricultural cultures

Practices with "low frequency":

The *efficiency of irrigation systems* in Austria is still not so important as due to the favourable climatic and hydrological conditions only about 2,3 % of the agricultural areas have to be irrigated (especially in Eastern and South Austria). Nevertheless regarding the increase of droughts also in Austria some discussions and surveys are conducted in recent times (e.g. water for irrigation of surrounding areas from Danube river).

The *reintroduction of forest trees and shrubs* are not very welcomed by the farmers, because only the negative effects of trees (e.g. reduction of water supply in the surroundings) in agricultural areas are seen. Nevertheless the implementation of hedges for the soil protection ("windbreaks") is funded in Austria (Agro-Environmental Programme ÖPUL), but the requirements are not well target-oriented as funds are only paid out if the percentage of forest cover in the respective cadastral community is below 20% (LE 14-20, project measure 8.1.1. afforestations and planting of forests of former agrarian or other land).

Manual mowing or mowing with horses is conducted and funded in Austria mainly in small scale wetland areas or alpine pastures, whereby such wetland areas are often protected areas (NATURA 2000, Ramsar) and thus connected with strict reglementations and target-oriented management plans.

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Practices with "normal frequency":

Permanently covered interrows and rows within vineyards and orchards are a very effective measure to reduce soil erosion and is often used in Austria, whereby more common is the coverage of only every second interrow, although the effectiveness is not as high as with the previous method.

Extensive agriculture with low input of fertilizers or other chemical substances are funded in Austria (Agro-Environmental Programme ÖPUL 14-20) and is a good measure for increasing biodiversity. Relevant goals for CAMARO-D are:

- Improve water management, including handling of fertilizers and pesticides
- Prevention of soil erosion and improvement of soil management

Well-fare practices for grazing are very common in Austria. Main goals:

- Increase in animal welfare through grazing
- Development and maintenance of grazing as a resource and climate friendly grassland management form

Proper density of cattle at pastures is funded in Austria (Agro-Environmental Programme ÖPUL), so that overgrazing is less attractive. The subsidy relates to income losses for pasture compared to conventional farming. Commitments are:

- Grazing at least 120 days per year (between 1st of April until 15th of November) of all animals
- A maximum of 4 RGVE per hectare of grazing land is eligible (RGVE = GLU: Grazing lifestock unit, 1 GLU= 500 kg).

Nevertheless subsidies to protect water and nature should be bound on the quality of management and not on life stock density.

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Practices with "high frequency":

Biological agriculture is already mentioned within chapter 0.

Dry vegetation burning on permanent pastures is strictly prohibited (see chapter 0).

Low input systems in livestock production are very often in Austria as due to harsh conditions in mountainous areas low input systems are abundant.

Trainings and advisory services are common in Austria and implemented by law. Each Federal State has its own agricultural chambers (see chapter 0).

Improved crop rotation in biological farming is state of the art in Austria.

Forestry

In Austria 47.6 % of the national territory is covered by forests, whereby Norway spruce is the dominant tree species. Forest ecosystems have on the one side a high economic value in Austria and on the other side also protection functions (mainly against different natural hazards), which are delineated and legally decreed (12.5 % of the total forest area without timber production) within the Forest Development Plan. Also the ecosystem services of drinking water protection are very important, but yet not generally regulated. This will be the challenge and task for the next years and CAMARO-D will play an important role concerning this issue. A new bundle of measures "Forest.Water" has been lined out within the actual Rural Development Programme 2014-20 and shall secure drinking water resources for the future through target-oriented forest management measures. To compensate the additional expenses, subsidies within the framework of the Rural Development Programme shall be distributed considering already existing requirements by the Austrian Water Act or other legislations.

Practices with "low frequency":

As forest management in Austria is an important source of income, most of the practices with "low frequency" are difficult to be implemented without any additional financial support of the

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foresters. Therefore especially within drinking water protection zones it will be necessary to take this option into account. Within other protection zones (against natural hazards) certain funding systems already exist ("Protection through Forest" – ISDW) through the EU Rural Development Regulation. Therefore following issues should be fostered in the future, especially within sensitive areas (with drinking water protection zones or areas prone to floods) as all of them are not common in Austria (see "CAMARO-D GAP-analysis Report Austria"):

Soil-conserving timber harvest: tractor-skidding is the most usual method in Austria, the application of skyline-crane systems or horses would be a much better alternative, as tractor-skidding triggers soil compaction and soil erosion.

Establishing of root-intensive field shrubs within runoff-intensive areas and *maintaining optimal forest structure* to prevent and control high torrential floods in small watersheds.

Avoiding open spaces and *avoidance of clear-cuts* as well as the *limitation of the percentage of timber extraction* (*Small-scale regeneration techniques*) are the most effective measures to reduce surface run-off and to protect soil formations and related drinking water resources.

Additionally *the establishment of mixed and structural diverse forests with defined canopy cover percentage and continuous regeneration dynamics fostering stable vital and resilient tree species, according to the natural forest community* as well as *the identification and protection of virgin forests and the fostering of old, huge and vital tree individuals* would be a good precondition for an adequate integrative planning strategy for watersheds. On the basis of "Forest Hydrotope Models" (developed by the Institute of Silviculture of the University of Natural Resources and Life Sciences in Vienna) a *source water protection policy* should be implemented for the future. In some cases (e.g. catchment areas of Vienna Water) these guidelines were already implemented and within CAMARO-D it is planned to be realized within the foreseen pilot area water protection zone "Dietacher Holz".

Along water courses and streams the *stabilization* with stable, autochthonous tree species and an adequate crown percentage should be fostered to avoid lateral erosion processes and to prevent the streams from exhaustive intrusion respectively creation of sediments during strong precipitation events. Whereas steep forested slopes along alpine rivers and brooks need special management (permanent forests, no climax forest vegetation or dead-wood, rather

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small deciduous trees) to decrease driftwood and damage potential in torrential runoff events. Currently there are intensive conflicts of use in Alpine regions as natural hazards along torrents (like mudslides) are increasing due to heavy rain falls and therefore technical measures are steadily in demand by the affected inhabitants.

In some cases edge strips of rivers are purchased for a near-natural water development and natural flood protection (LIFE / LEADER projects).

Forest ecologically sustainable wild ungulate densities are a big problem in Austria as trophy hunting is very important. Austrian forests have severe problems with this excessive stock of wild ungulates: browsing damages reach more than 50 % of the forested areas. Therefore strict regulations of game would be very useful and the facilitation and reintroduction of wolves and lynxes would support this objective.

Practices with "normal frequency":

The *establishment of protective forests* is regulated in Austria due to the Forest Development Plan, where forests with site protection function (areas prone to wind-throws, sites with fragile soil formations, sites with erosion processes and timberline regions) and forests with an object protection function (forests that protect people, human settlements or facilities against natural hazards) are delimited. As this kind of protective forests need a *special management regime* they are unpopular and cause additional costs. Although these costs are funded authorities often hesitate to order such general restrictions. The evaluation of existing afforestations in high altitudes is planned and the results shall form the basis for targeted future implementation of afforestations.

In this context also the *maintenance of natural regeneration* through fellings by means of *selected cutting* and *structural thinning* is very important for ensuring natural regeneration and forest stand stability especially within sensitive forest areas with protection functions (see above and also e.g. shelterbelts along rivers). Adequate changes in the existing forest law could help to foster this technology.

In some cases in Austrian forests the *use of livestock power for harvesting* is implemented and funded by the Rural Development Programme (LE 14-20/VHA 8.5.1). Appropriate training courses with horses for example are part of lessons for forest students at AREC. Also by means

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of *skyline-crane systems*, especially within sensitive forest sites (like DWPZ), so-called assortment-techniques (cut to the length method) should be applied and the whole-tree harvesting method has to be avoided. But these methods are not self-evident in Austria.

Special sites with ecological important *areas* are *protected* by means of nature reserves. For example in south-western Lower Austria the forest "Rothwald" (3.500 ha), the largest remaining primeval forest in Central Europe, has remained untouched since the last ice age and is accordingly strongly protected (IUCN 1a category). There does not occur any forest management in this reserve, therefore also *dead wood* is left accordingly on these forest sites.

In recent times many efforts are made in the research field regarding *climate change* and its effects on forest tree species. Unfortunately these changed circumstances (together with an increase of pests) led to an inappropriate approach in some areas of Austria, as alien tree species (e.g. Douglas fir) are seen as more resilient and subsequently are *artificial recruited.* This should be avoided within drinking water protection zones as the impacts of these non-autochthonous tree species are not well investigated. Autochthonous tree species can be used with more security for climate change adaptation strategies.

The *prohibition of chemical fertilizers and pesticides or herbicides* is already implemented in some legally decreed drinking water protection zones (DWPZ) in Austria, but unfortunately not always. But this is crucial and should be self-evident for the affected foresters in each DWPZ. Additionally the existing funding systems ("technical measures and prevention") should be reviewed accordingly and controls should be strengthened.

Grazing with domestic animals in forests is present only in some areas in Austria (2008: 8% of forest cover; Austrian Forest Inventory) and the tendency is decreasing. Nevertheless forest grazing separation programmes should be continuously pursued as the permeability of the soils gets reduced and surface run-off as well as soil erosion are increasing due to these practices.

<u>Practices with "high frequency":</u>

The afforestation of clear-cut areas is mandatory due to the Austrian Forest Act, but which kind of tree species should be recruited is not prescribed.

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Forest fire prevention is common in Austria. In case of long lasting drought periods a warning system for the general public prohibits for example all fire producing processes (e.g. barbecue, traditional fires or fireworks).

Water Management

Practices with "low frequency":

To some extent still existing *wetland areas* in Austria are *protected* (e.g. NATURA 2000 Ramsar) and their special adapted agricultural management (e.g. mowing only during certain times) is funded. Nowadays some improvements (e.g. river widening, fish ladders nearby hydropower plants) due to the rules of the Water Framework Directive are implemented, especially to provide again migration ways for fish and to improve flood retention – often *funded* by means of EU- programmes (LIFE, LEADER). Nevertheless many of the Austrian rivers are still canalized leading to an acceleration of flood waves, a reduction of retention capacity, a decrease in self-purification potential and a decline of biodiversity.

As space in Austrian narrow valleys is very rare and valuable these areas in many cases are intensively used (agriculture, settlements and infrastructure). Therefore *floodplains* often are not really respected and *protected*. But as floods and the relevant risk potential are increasing in recent times a rethinking process within flood-prone areas occurs: Natural areas along streams with the potential for retaining floods are built to improve water retention. Also the *observing and warning systems* (forecast, alarming) as well as the competences in case of a flood event are optimized in the last years.

Due to favourable climatic and hydrological conditions only about 2.3 % of the agricultural areas have to be irrigated. Nevertheless due to climate change droughts are also increasing in Austria and could lead to harvest losses. Therefore appropriate *information systems* for farmers about ideal time of *irrigations* are currently established.

Contaminated sites in Austria are well documented and systematically registered as well as analysed, but the cleaning is often very expensive and difficult. The *revitalisation* of old stone quarries, *waste disposal* sites etc. is obligatory.

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Practices with "normal frequency":

Ex lege protected water related habitats (bogs, fens etc.) are defined for example through Natura 2000 or Ramsar areas and supported by means of LIFE-projects leading to an improvement of aquatic ecology and habitat connectivity. Nevertheless some regions in Austria are still lagging behind concerning the designation of further Natura 2000 areas. Since 1999, Austria has a specific strategy for wetland areas and all nine federal states signed it. It establishes the long-term safeguarding of the domestic wetlands. The conservation of water bodies, riparian forests and bogs has to be implemented and ensured in a broad interplay of the affected parties.

Public information and education concerning flood risk and sustainable water management in general is conducted through the public participation within the development of the National Water and Flood Risk Management Plan, by means of school programs and handbooks for teachers (www.biberberti.com, www.die-wildbach.at), an information platform about flood areas (www.hora.gv.at) and detailed data on the monitoring networks of Austrian groundwater, surface waters, lakes and isotopes can be accessed at any time via the water information system Austria (WISA, www.bmlfuw.gv.at/wasser/wisa.html).

Integrated nutrient pollution control to reduce discharges to water bodies is not conducted all over Austria. The respective monitoring needs to be implemented and improved.

Within some LIFE and LIFE+ projects in Austria (e.g. in the Enns Valley "Flusslandschaft Enns" http://www.life-enns.at/index_en.htm) *old river streams* were *connected to the main stream* and also *fish ladders* are continuously established in recent years and legally prescribed, especially in the course of (existing) hydropower plants. Nevertheless much experience has been lost and the promotion of the potential of bio-engineering methods is necessary. The *greening of riparian zones* is determined within the Austrian Rural Development Plan (LE14-20, VHA 4.4.1, 4.4.3).

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Removal, prevention and monitoring of invasive plant species along rivers and streams have to be improved and implemented on large-scale areas as well as on local level. The general public has to be better informed about the severe problems (loss of natural succession, species poverty, insufficient soil rooting leading to leaching tendencies and impact on macrozoobenthos) occurring with these species.

The Quality Objective Ordinance ("Qualitätszielverordnung 2010") regulates the chemical and *ecological status* for surface waters and the water condition *monitoring* due to the Austrian Water Act. Many measures were already fulfilled in the last period (LIFE, LEADER projects), but also many measures are still necessary in the following periods as for example most of the watercourses have been modified very strongly (about 2/3 of the Austrian watercourses are in moderate to bad hydromorphological condition) due to pressures of different land use. Therefore the last remaining near-natural watercourses have to be protected.

Drinking water protection zones (ground water areas) are *designated* by decree and delineated within spatial plans, but legally binding regulations in general are missing. As the province authorities are responsible for the implementation of these measures, the realization differs in each region and in every legally decreed drinking water protection area.

High roughness of slopes in the side (contributory) valleys is not common in Austria, smoothing of (agricultural) land surfaces in torrential water sheds is usually used instead. Therefore better information and trainings of land owners are necessary.

Greening measures (improved proportion of forested areas and conversion to permanent grass) *for groundwater protection* should be more promoted in Austria.

Although a *Nitrate Action Plan* (including consultations for farmers) exists on national level regulating and controlling nitrate application by farmers, the values of nitrate and some pesticides decreased only slightly or remained quite unchanged since the last planning period 2009. Due to intensive agriculture, especially in the eastern part of Austria, where yearly precipitation is relatively low, these circumstances cause negative effects on groundwater recharge and dilution. Therefore the Austrian "*ÖPUL-Programme"* shall provide additional *incentives* to decrease the amount of fertiliser supplemented by consultations. In Styria for example a special regional programme (Regional program for the protection of groundwater bodies Grazerfeld, Leibnitzerfeld and the Lower Murtal) was additionally developed to

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decrease nitrate concentrations (see CAMARO-D "Review of existing policy instruments in Austria").

Water safety plans for future water supplies are not established yet in Austria as water quantity in general does not pose a problem. But in the context with climate change such provision plans should be envisaged and are already under discussion, especially within regions prone to drought periods in the future.

Practices with "high frequency":

Protection against accidental pollutions (accidents within industry, traffic etc.) is common in Austria and legally determined within the Austrian Water Act (extent of detection and effects of unintentional pollution, monitoring for investigation purposes).

Hazard and Flood risk maps exist for the whole country, whereby the data situation varies between different areas. These maps have to be evaluated every six years due to the EU Floods Directive, 2018 the upcoming update-phase for the "preliminary flood risk assessment" will be finalised and in 2019 for hazard and risk maps, based on new and detailed data. For the upcoming planning period (until 2021) the funding of measures for restoration of rivers by re-establishment of flooding and deposit areas is foreseen. As most of these areas have also a poor hydro-morphological status" synergy effects can be used. So-called "Watercourses development- and risk management concepts" ("Gewässerentwicklungs- und Risikomanagementkonzepte") were developed as a general planning instrument with improved and efficient cooperation of all involved authorities to harmonize the targets of the Water Framework Directive and the Floods Directive towards a coordinated concept of measures. Within these concepts a catchment-based approach considering flood protection and the relevant flood risk management as well as ecological aspects should be pursued.

Flood Risks Management Plans are also available for many catchments in Austria (WISA; https://www.bmlfuw.gv.at/wasser/wisa/fachinformation/hochwasserrisiko/hochwasserrisikoplan/managementplan.html). Within former Interreg-Projects (MONITOR, RiMaComm) several risk management and communication issues were surveyed and models as well as tools developed, which are already used for example in Tyrol.

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Data management is well developed (also available for the general public) in Austria as already mentioned above.

Trainings and awareness raising activities are manifold in Austria and provided by different institutions according to the respective target groups (chambers of agriculture, AREC, ÖWAV etc.).

Spatial planning

In Austria spatial planning is not regulated on national level - except some planning issues, like high-level road networks, forestry and water management. The nine Federal States are responsible for spatial planning legislation instead; together with their municipalities they are responsible for implementation. Therefore, the importance of spatial planning and its application is different between the Federal States.

Practices with "low frequency":

Ecological structures within the landscape (e.g for increasing water retention capacity) and respective *discussion processes including local activities and stakeholders* are rarely implemented in Austria as land take for buildings and infrastructure is extremely high. Additionally, existing (tax) incentive systems for municipalities foster the increase of sealed areas and thus obstruct land-saving development.

Also *land use coordination in river catchments by inter-municipal cooperation* is not well developed in Austria, although in recent times due to increasing flood events the necessity of coordinated measures along rivers was recognized by some regions (e.g. river Salzach). The cooperation of municipalities within so called "planning regions" would be necessary to harmonize further land use demands and could also be a possibility to realise spatial planning on river catchment level, which is one of the objectives of CAMARO-D.

A specific *definition of river corridors and riparian areas* on land parcel level is widely missing in the spatial planning acts of the Federal States in Austria. The so-called "Blue Zone Programme Rhine Valley 2013"

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(www.vorarlberg.at/vorarlberg/bauen_wohnen/bauen/raumplanung/weitereinformationen/instrumenteundverfahren/landesraumplaene/blauzone.htm) in the Federal State of Vorarlberg currently is the only example for direct flood-related zoning at the regional planning level. Each municipality affected by this programme has to zone so-called "Freihalteflächen" – areas within local land use plans ("Flächenwidmungspläne"), which have to be kept open for flood-retention and run-off.

Practices with "normal frequency":

Regional plans or regional development concepts with different aspects and targets exist, for example in Styria a "Programme for Flood-Safe Development in Settlement Areas" minimizing the risk associated with flood events by spatial planning measures (see CAMARO-D "Review of existing policy instruments in Austria"). It defines rules, legally binding for zoning at municipal level, in terms of restrictions (no zoning of building land in the 100-years flooding area and in red hazard zones related to the hazard maps of the Austrian Service for Torrent- and Avalanche Control) and related exceptions concerning zoning of building land in flood-prone areas.

Local land use concepts are legally binding in most of the Federal States, but within local land use plans building zones should be sometimes decreed temporal limited to avoid the implementation of outdated determinations and to be more flexible in terms of changed circumstances (like increase of floods). Consequently a continuous update can be conducted. Furthermore the water retention capacity within building areas should be improved, for example by means of permeable surfaces or roof greening determined within building regulation plans. In this context also the increased determination of agricultural priority zones (with high productivity and retention capacity; "Vorrangflächen") should be envisaged.

Practices with "high frequency":

The incorporation of water management plans into spatial planning is common in Austria, but in case of flood hazard maps for example not per se legally binding as these maps are regarded as "qualified expert opinions", not as administrative regulations. If there are specific zoning restrictions in the spatial planning laws of the Federal States, like building bans referring to the

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100-years flood or to hazard zones, flood hazard maps have to be taken into consideration within decision making. Additionally, some flood hazard maps show areas ("yellow-red zones") for flood discharge and regional flood retention ("Funktionsbereiche"), which are able to reduce the flood peak significantly. Within these areas no buildings should be constructed in order to preserve the flood retention and discharge functions.

Technical measures

Agriculture

(Infiltrating)Ditches, hedges, sediment trapping and infiltrating pools, water retention strips as well as *retarding basins* are not so common practices in Austria, whereas *sediment trapping reservoirs* and *sediment control dams* (especially in mountain regions because of natural hazards), *terraces* (within vineyards) and *flood control canals* (like in Vienna) are more often used in Austria.

Forestry

Retention pools (naturally occurring depressions as temporary water retention basins) will be integrated in the planning process in the future by the Austrian Service for Torrent- and Avalanche Control (WLV).

As *forest road* constructions are more excessively implemented in Austria also the *removal* of some roads is not really important, but should be envisaged, especially within drinking water protection zones. At least suitable *frequent cross drainages* on the roads are common to carry water to the sides to infiltrate everywhere along the road.

The maintaining of existing and building of new infrastructure (barrages, small-fortifications, stone thresholds etc.) *in affected erosion regions* is very important in Austria and is continuously performed, although it is very expensive and time-consuming due to increasing hazards (mudslides etc.).

Afforestation of damaged forest terrains (e.g. after wind-throws) is obligatory due to the Forest Act, but the selection of tree species is not mandatory, although Norway spruce – the most popular tree species in Austria - for example in some areas is absolutely not suitable for

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stabilization issues. The tree species set of the natural forest community has to be used as decision support tool for the tree species selection in case of afforestation measures within damaged forest areas.

Water management

High roughness of floodplains to increase flood water retention as well as *floodplains protection / reservation* are not common practices in Austria due to the already mentioned intensive land use within mountainous valleys and the derived various interest conflicts. *Flood control dams and levee*s are usually used instead to protect urban areas and areas with special interest.

Strict construction of retention structures accompanying important sealed areas are also not really implemented in Austria, although *surface water* related hazards ("Hangwasser") are often a problem in some regions. In these cases structural adjustment measures as well as the preservation of flow paths should be determined within building regulation plans.

Revitalisation of streams, creek renaturation and *the restoration of old and recent wetlands* are conducted mostly within certain funded projects (LIFE+ etc.) as already mentioned above in detail.

To implement the Austrian Water Act (EU-Water Framework Directive), the Austrian Service for Torrent and Avalanche control developed a catalogue for ecological control structures. Each Province Department has its own responsibility for monitoring compliance with the ecological guidelines for the protection measures against floods and debris flows. Every protection project is water-based and ecologically assessed. An ecological building supervision can be requested from the Province Authority.

Spatial Planning

As already mentioned before land take for buildings and infrastructure is very high in Austria, especially along rivers in narrow Alpine valleys, several "Best practices" as listed in the table are not very popular, although they would improve the water balance in general.

Following measures are not common in Austria (only in some exceptional cases):

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Reservation of space within catchments for natural floodplains, water reservoirs, polders and other retention structures and determination within *local land use planning* together with an *improvement of the legal and financial background of land acquisition*

Keeping low percentage of sealed surfaces within settlement areas

Incorporation of artificial wetlands or other measures (green drains, green areas, green roofs etc.) *into urbanized areas*

Maps indicating the degree of negative hydrological effects of surface sealing

Following measures are occasionally used, but should be improved:

Rainwater is infiltrated directly at the parcel: actually water from sealed areas often is discharged to receiving water courses, which increases the danger of over boarding and flooding

Incorporation of ecological elements into landscape matrix is especially conducted within land consolidation schemes

Parcels within groundwater protection areas have to be displayed in spatial planning instruments (especially in local land use plans) in Austria

The promotion of buildings adapted to (low) flood hazards is sometimes conducted as affected citizens are integrated in local land use planning processes

Building bans in zones with high potential flood-hazards were occasional used in the past and more frequently applied within the last decade.

Following measure is frequently used:

Efficient and effective waste water treatment plants are strictly incorporated into each settlement. The connection rate to the sewer system in Austria is 94.9 % (2011).

Areas of interests, typical interdisciplinary implementation strategies

Modified crop rotation in agreement with management strategies for soil and environment conservation as well as *permanent grassing* on steep slopes under defined conditions are only rarely used in Austria, whereas the real land-consolidation projects (*change of size and shape of individual parcels*) are often used in Austria combined with the implementation or enlargement of green ecological structures (hedges etc.) in the respective landscape.

In the context with flood protection or other natural hazard preventions the *design and implementation of "common structures"*, the *readjustment of land for public projects* (like flood prevention, nature conservation) and the *development of multi-purpose projects* to connect water, soil and landscape improvement are more or less frequently used. Also *permanent afforestations* on steep slopes under defined conditions are in some cases necessary, whereby the impact of existing afforestations on runoff prevention and slope stabilization should be evaluated.

Surface water resources protection zones

In Austria farmers are *stimulated to implement soil conservation* by means of funding systems (ÖPUL), whereas land owners in general are not really encouraged to act accordingly.

The *monitoring of surface waters* (quantity and quality) is mandatory due to the Water Framework Directive and the Austrian "Water Status Monitoring Regulation" ("Gewässerzustandsüberwachungsverordnung"), whereas the *monitoring of production, import and use of chemical products* is not conducted nationwide and permanently.

Irrigation of arable land with waters that do not have drinking characteristics is strongly *prohibited* in Austria.

Specific areas with valuable water ecosystems or terrestrial areas interlinked with water (e.g. floodplains) are *determined and declared to protect* these *specific aquatic species* (e.g. NATURA 2000, national parks), whereby also often different interest conflicts (e.g. hydropower plants) occur and subsequently it is difficult to push the respective ecological protection trough.

Restrictions of activities within drinking water supply areas (whereby in Austria mainly groundwater resources are used for drinking water) are – as already mentioned before – not sufficient enough in Austria and should be improved and regulated in general, whereas the

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application of fertilizers or pesticides on saturated, flooded or frozen / snow-covered plots is prohibited in Austria.

Groundwater resources protection zones

Concerning the *stimulation of farmers / land owners to implement soil conservation* the same applies as already mentioned within chapter 0.

Water protection and water conservation areas (large protection areas) have to be made evident in Austria *within the local zoning plans* ("Flächenwidmungspläne") of a municipality. Therefore the municipalities have to take into account these zones when they are zoning their areas to get the approval of the responsible Federal State Government. But neither water conservation nor water protection areas determine a building ban in general. Whereas *deposition and application of water-polluting substances* – as nitrate fertilizer, pesticides, waste, sludge and radioactive or chemical substances – are *regulated,* whereby subject to approval varies within the different ordinances. The *application of fertilizers or pesticides on saturated, flooded or frozen / snow-covered plots* is prohibited in Austria.

Monitoring of groundwater is equivalent with surface water (see chapter 0). The Austrian Drinking Water Decree of the Federal Ministry of Health regulates the requirements concerning the quality of water for human use, the comprehensiveness and the frequency of drinking water analysis for water suppliers as well as derogations of water quality. It is the crucial law for drinking water quality as it defines all threshold values for relevant substances in the supplied drinking water. Annually a drinking water report has to be conducted by the Federal Ministry of Health to inform the consumer regularly. Austria plays a leading role concerning monitoring as well as thresholds and has stricter regulations than the EU requirements: monitoring of additional substances, which could for example cause problems in the future, and more frequently inspections (at least once a year) to avoid potential drinking water quality problems in time. Further research will be necessary to understand the interdependencies between surface and groundwater respectively the relevant aquifer to implement target-oriented, sustainable land use practices.

The connection rate to the sewer system in Austria is 94.9 % (2011); therefore *direct wastewater discharge into groundwater* is almost completely *prevented*. Only three sewage

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treatment plants (> 2000 inhabitants) discharge their waste water into groundwater on the basis of water permissions, but they do not cause any degradation of groundwater quality status. Due to national requirements all municipal sewage plants have to be equipped with carbon-extraction. Moreover, most of the plants have a further wastewater treatment stage (phosphor-/nitrogen-extraction). The cleaning power achieves 80 % of N and 90 % of P. Nevertheless, measures that will further reduce ammonium, zinc, AOX and copper emissions are foreseen in the future.

4.2 Bulgaria

Forestry

There are traditions of common process of planning and cooperation between forest and fire prevention services in the country. Common Fire Fighting Plans are elaborated annually and adopted on a regional level. They include common forest fire prevention activities. An early automatic warning system is developed, which covers more than 10% of the country. The responsible institutions continue their effort to expand the system.

There is a number of legislative obligations in Forest act and its' Regulations, especially related with activities in torrential watersheds. There are special management regimes for protective forests and protected areas. This is of a great importance because Natura 2000 areas cover 34% of the country territory and 57% of forests.

The drinking water protected areas (DWPA) regimes and measures are incorporated in forest legislation and in the water one as well.

According to the Forest act clear cut in Bulgaria is forbidden except in some short-rotation species plantations /poplar, willow/ and coppice forests. Small-scale regeneration techniques are mostly used, especially in DWPA and vulnerable watersheds.

The measure "Stabilization of riverside lands" is part of the national "Programme of measures for adaptation of the forests in Bulgaria and mitigation the negative effect of climate change on them", adopted by the Minister of agriculture and food.

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The torrential watersheds are registered with an Order of the Executive director of EFA on 30.07.2015, updated every year. The special measures for those watersheds are part of forest management plans.

Most of the torrential watersheds are situated in mountain regions and in Natura 2000 zones, which guarantees implementation of close to nature management of the forest stands.

According to Bulgarian forest legislation /Ordinance 21/...../ for conservation of forest reproductive materials, for scientific observations and research and for restoration of degraded or destroyed genetic resources due to natural disasters, a "gene bank" is created. In the "gene bank" are included registered forest basic materials. Forest seed control stations /2 on the territory of the country/ maintain the data base and public register with all forest genetic resources, included in the „gene bank".

Grassland

In the last 20 years the number of grazing animals decreased in total in the country and the density of the cattle at the pastures is not high at present. In forest territories grazing is strictly regulated in line with the forest legislation to avoid enormous grazing and to protect the biodiversity, the undergrowth and the young forest stands. There is strict prohibition of dry vegetation burning on permanent pastures in order to avoid soil degradation and loss of biodiversity. There are regulations and standards for grazing, concerning density, size of herds and periods of grazing.

Arable Agriculture

In the past a part of the agricultural land in Bulgaria was contaminated, but at present, the major part of the agricultural land is with low application of mineral fertilizers and pesticides. There are regulations for the application of fertilizers and pesticides. The planning process was indicated as being successful measure to reduce pollution. The Bulgarian Plan for Development of Organic Farming (NPDOF) is elaborated in compliance with The European Action Plan for Organic Farming.

The Law on the Conservation of Agricultural Land and the Soil Act in Bulgaria explicitly prohibits the burning of stubble. There are significant fines and sanctions for farmers related to EU subsidies.

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Water Management

Special legislation prescribes the conditions for the research, design, adoption, approval and exploitation of Sanitary Protection Zones /Drinking water protected areas/ in Bulgaria. The DWPA measures are included also in the River Basin Management Plans 2016-2020.

The European Floods Directive requires Member States to implement the approach of long-term planning in three stages: I stage - Preliminary flood risk assessment (PFRA); II stage - Flood hazard and flood risk mapping; III stage - Flood risk management plans, including Programmes of measures.

The preliminary flood risk assessment (PFRA) in Bulgaria was made in the period 2011 - 2012 for each region of the basin. A total of 1,903 past floods have been recorded in the country.

Mapping of flood hazard areas shows the adverse effects of flooding for each of the probabilistic periods.

Flood risk management plans focus on:

- Prevention;
- Protection;
- Preparedness, including prediction and early warning system.

According to the published draft Flood Risk Management Plans for the four basin directorates, 68 types of measures were included in the Programs of measures.

Bulgaria implements the requirements laid down in the Flood Directive together with neighboring countries. Bilateral agreements with Turkey, Greece and Romania in the field of water management were signed. Under preparation are the agreements with Serbia and FYROM.

Protection Zones

According to actualized RBMPs in Bulgaria (2016-2020), the Protected areas /PA/ include: PA for abstraction of water for human consumption (Directive 75/440/EC); PA for protection of habitats or species (including relevant Natura 2000 sites designated under Directive 92/43/EEC (1) and Directive 79/409/EEC (2); vulnerable zones (Directive 91/676/EC), etc.

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The RBMPs provide monitoring and assessment of the status of surface water, groundwaters, and water protection areas.

Normal frequencies

Forestry

According to Forest legislation /Ordinance 8 for forest logging/ one of the main principals of forest logging is to maintain the mixed structure of the forest stands and to maintain also individuals from valuable tree species. All activities during the logging are directed to maintain the structural diversity of the forest.

According to the Forest act clear cut in Bulgaria is forbidden except in some short-rotation species plantations /poplar, willow/ and coppice forests.

The use of livestock power for harvesting is popular and common practice, especially in mountainous regions, which is proper technique for soil conservation.

Coniferous plantations, afforested 40-50 years ago out of their natural areal with the main aim to control the erosion in the country reached their utmost growth limit. As a result they are very susceptible to bark beetle or other forest pests. Recently on the territory of the country about 30 000 ha coniferous plantations are affected. There are legislative measures for ecological reconstruction of damaged forests, e.g. cutting of the affected forests and encouragement of natural regeneration of the broadleaf species in their natural areal.

Grassland

In the recent years there is a strong tendency for increase of biological farming in the country.

Arable Agriculture

Fertilizer and pesticides planning and monitoring is essential to obtain the best balance of economic and environmental benefits.

The introduction of sustainable irrigation techniques, application of proper irrigation and increasing the efficiency of irrigation systems are laid down in the RBMPs and the Strategy for development of hydro-land reclamation. The financing is difficult, particularly for construction of big irrigation systems.

Water Management

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The Programs of measures of the RBMP 2016-2020 and Flood Risk Management Plans include some measures such as: Development of Water scarcity and draughts management plans (WSDMP); optimal water allocation of the water resources management systems, reservoirs and collecting derivations for ecological flow and water supply provision, etc. Observing and warning (monitoring, forecast, alarming) system for integrated water management is also elaborated.

The measure "Optimizing the system of monitoring and forecasting of precipitation and river runoff in the river basin and reservoir operation in case of flood and drought" is part of the national Programme of measures. There is a need of National System for water management in real time. One of the solutions for flood control could be the elaboration of Decision Support System and models for reservoir management under extreme condition. To improve the management of flood hazards, a real time hydrological data processing and flood forecasting/warning system was set up by the National Institute of Meteorology and Hydrology. For some river basins are created systems of monitoring and precipitation forecasting (Arda, Tundzha, Maritsa, etc.).

The Programs of measures of the RBMP 2016-2020 and Flood Risk Management Plans, developed models and systems need to be implemented in the practice.

Spatial Planning

For flood prevention in Bulgaria are used some reservoirs.

Protection Zones

The Ordinance №3 defines the boundaries of the zones within the WPAs depending on the type of the water source(river, reservoir or lake), as well as the degree of pollution and the self-purification capabilities of water body, the types of pollutants and the specific conditions of the local environment.

The Programmes of Measures in RBMPs include measures to control and reduce the impact of human activities and climate changes on water and ecosystems. For Water protection areas in Natura 2000 network in Bulgaria water management is improved by setting the requirements for the quantity and quality of water.

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The Programmes of Measures in Bulgaria include specific measures such as “Improvement the water management in the zone of water protection and compliance of RBMPs with the regimes and measures of waters in the protected zones/territories”.

4.3 Croatia

Agriculture

The Croatian Advisory Service as a public institution for advisory activities in agriculture; conducts workshops and educations for farmers on the sustainable use of pesticides and fertilizers; gives advices and educate farmers on the adequate soil cultivation methods; addresses the potential negative impacts that burning of stubble can have on soil ecosystem, recommends the alternatives for managing the stubble after harvest, etc.

According to the Rural Development Programme 2014.-2020. together with specific education of farmers, it is necessary to encourage the use of a balanced multiannual fertilization plan corresponding to the real needs of the crop, so optimum rather than maximum amount of fertilizers is used. The Agricultural Inspection monitors the implementation of laws and the application of part of the provisions and regulations related to agriculture in Croatia. It also monitors implementation of agriculture policies; use and protection of agricultural land; quality, identification and traffic of manure, pesticides and fertilizers. There is also a List of fertilizers and soil improvers that are allowed by existing legislation.

Agricultural production is prohibited in the I. sanitary protection zone of springs that capture groundwater from aquifers with intergranular porosity and aquifers with fracture and fracture-cavern porosity. Furthermore, agricultural production except ecological (organic production with the application of the permitted fertilizers and plan protection compounds in line with the regulations) is prohibited within the II. sanitary protection zone.

Forestry

Around 48% of the Croatian territory is covered with forests and forest land. The basis for the sustainable forest management in Croatia are conservation of natural forest structure and diversity of forest stands, continuous improvement of the stability and economic and general forest functions.

Croatia is investing significant amount of funds into fire prevention and recovery of burned areas. Measures of forest fire prevention such as forest stand cleaning (removing the layer of ground shrubs that pose a potential threat to the emergence and spread of fire) and forest segment clearing are proscribed with the Forest Management Plan of the Republic of Croatia 2016-2025. The Croatian Advisory Service promotes forest and forest land management and gives advices to private forest owners on the forest protection and cultivation. It also participates in the preparation of forest and forest land protection acts aimed at the forest fire prevention; collection of data on forest fires; establishment of the monitoring system and reporting of relevant institutions on the occurrence of harmful organisms in forests.

Water management

Some of the frequent best management practices applied within the Croatian water management, are as follows: protection of wetlands areas; establishment of sanitary protection zones (DWPZ); economic measures addressing water scarcity and drought; Flood Risk Management Plan etc.

Wetlands occupy around 395 000 ha of Croatia (around 7% of territory) and more than 50 000 km of streams and channels. They are often drained to make space for increased or more efficient agricultural production. Wetland habitats are one of the most sensitive or vulnerable areas in Croatia and are therefore protected within the Natura 2000 ecological network or by the Nature Protection Act. Also their role in water storage, groundwater recharge and reduction of down-stream runoff is of great importance. Through the project called Inventorisation of wetland habitats in Croatia, GIS database and list of wetland habitats in Croatia was created, enabling preparation of the national wetland conservation policy, identifying causes of threat and revitalization requirements for threatened wetland habitats, mapping wetland habitats for their inclusion in the physical planning processes at the national and local level etc.

Economic analysis of water usage is conducted on the national level while the Programme of investment measures is planned on the river basin level. Croatian Waters collect funds from water use and protection fees and utilize them as subsidies for projects aimed at improving the water ecosystem and water state.

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Determination of drinking water protection zones in Croatia differ depending on aquifer porosity. Thus criteria for delineation of DWPZ in intergranular aquifers are groundwater travel time and discharge rate, while in aquifers with fracture and fracture-cavernous porosity, the criteria additionally takes into account the groundwater flow velocity. There are three defined water protection zones in intergranular aquifers, while there are four drinking water protection zones in aquifers with fracture and fracture-cavernous porosity. Also, a number of limitations and restrictions in the particular sanitary protection zones are prescribed with currently valid legislations.

Regarding flood risk management, Croatia participated in the EU IPA 2010 TWINNING project "Development of Flood Hazard Maps and Flood Risk Maps" with purpose of implementing EU Floods Directive (with the final aim of developing flood hazard maps and flood risk maps). Developed flood hazard and flood risk maps are in 1:25000 scale and contain 3 scenarios: high probability T ≈ 25 years; medium probability T=100 years; low probability T ≈ 1000 years - large dam and dike breach. Flood Risk Maps show potential adverse consequences in the areas included in Flood Hazard Maps. They include information such as number of potentially endangered residents in settlements, land use data from CORINE Land Cover 2006, public, medical and educational buildings, infrastructural objects, protected areas (data from Register of protected areas DWPZ, Natura 2000, national parks etc.) and cultural heritage. Flood Risk Management Plan emphasize the role of natural water retention areas and flood retention areas for the flood prevention and flood protection over the structural flood protection measures. Therefore, the application of retention measures such as green infrastructure is recommended where they are technically and economically feasible.

Spatial planning

Spatial plans of counties and municipalities have the maps of planned and existing land use. Soil, landscape, water and water goods are defined as areas of specific limitations of use. Plans define that during the construction on unconstructed sites, the conditions of use, design and protection of forests and forest land, valuable landscape areas and protected natural values will be respected. Plans have the prescribed conditions and measures for the protection of nature/landscape values. The possible impacts of each intervention/project in space and also every spatial plan, strategic plans, programmes is assessed with Environmental impact

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assessment and strategic Environmental impact assessment. The public participation is mandatory for every EIA and SEA through public discussion.

Spatial plans of counties and municipalities define water resources and public water goods as areas of specific limitations of use. With them the protection against the floods and torrents, conditions for the water management objects/facilities location and protection (sanitary protection zones) is dictated. Areas of drinking water resources conservation (aquifers, drinking water protection zones) are included in the terms of use, development and protection of space in spatial plans.

Given that the public have the right to participate in the procedures for the development and adoption of spatial plans, State administrative bodies and public authorities must organize public discussions for each proposal of the spatial plan. In addition, The State and bodies of local and regional self-government units are required to regularly inform the public on the situation in the environment, enable, manage and promote public participation by developing social cohesion and by strengthening awareness for spatial protection.

4.4 Czechia

The partner provided BMP list of frequencies and comments on the BMS analysis within the checklist. The answers were processed within the main chapters above.

4.5 Germany

Introduction

The best management practices are listed and described from low to normal to high frequency in the following chapters. They are also separated into the different land use categories (agriculture, grassland management, forestry, spatial planning, water management, tourism, surface water and groundwater). In the segment “Water Management”, a point concerning water prices (e.g. “adequate water prices”) could be added – especially when considering our field trip in Serbia where the low price for water was mentioned as a major obstacle in solving the problems at the reservoir.

Agriculture – cropping systems

Agricultural land covers 45% and 47% of the territory in Baden-Wuerttemberg and Bavaria, respectively. In Baden-Württemberg, 58% of the agricultural land is cultivated land, 38.5% is permanent grassland, 1.5% is fruit growing and 1.8% is vineyards. Grains are grown on 60% of

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the cultivated land. In Bavaria, 65.5% of the agricultural land is cultivated land, 34% is permanent grassland. 55% of the cultivated land is grain.

In Baden-Württemberg, 9.2% (in 2015) of the agricultural land is used for organic farming, in Bavaria approximately 8%.

Practices with "high frequency":

Limitation of fertilizer and pesticide application on DWPZ is very common in Germany. DWPZ are usually not located on arable land. Land around a DWPZ may be arable with certain limitations.

Fertilizer application plan, inspection and *monitoring* are partly covered by the "Düngeverordnung" (fertilizer ordinance from May 2017). The ordinance regulates the usage of fertilizers, soil additives, and other plant growth aids concerning nitrogen fertilization. It is the German implementation of the EU Nitrate Directive. For example, the ordinance includes regulations concerning fertilization close to water bodies.

Pesticides application plan, monitoring and inspection are partly covered by the "Pflanzenschutz-Sachkundeverordnung" (Pesticide-Competence Ordinance) which took effect in 2013. It regulates the type and amount of knowledge and expertise needed for pesticide applications. How to apply the pesticides is regulated and determined by the BVL (Federal Office of Consumer Protection and Food Safety). There is also the "Pflanzenschutzmittelverordnung" (Regulation on authorization and authorization procedures for pesticides) which includes the EU regulation no. 1107/2009.

Proper irrigation is not a large topic in southern German agriculture, because due to favorable climatic conditions, irrigation is usually not needed. However, the need for irrigation has been increasing, and irrigation is necessary on sandy soils where field capacity is very low. By law, only a certain amount of groundwater can be used for irrigation purposes each year. With decreasing groundwater recharge rates in recent decades, more efficient surface irrigation techniques and irrigation controls have been developed.

Subsidies for farmers for limitations on DWPZ 1: Usually zone 1 is the source area for water and is bought by the water industry. No agriculture is allowed in DWPZ 1 or 2, therefore the land owner is compensated. In DWPZ3, manure, other fertilizers and pesticides are not allowed and land owners get some compensation there, too.

Vegetated buffer zones along water bodies are mentioned in the WHG (the German Water Act). Other regulations regarding vegetated buffer zones can be found in the laws dealing with fertilizers and pesticides. In Baden-Wuerttemberg, the buffer zone has to be at least 5 m wide (exceptions may be determined by the water authority and the municipality). Not included in this regulation are water bodies with minor importance to water management. Land owners

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get financial compensation if the establishment of vegetated buffer zones on their land causes a loss that is disproportionate or unfair compared to other land owners.

Fertilization with manure and compost – organic matter supply: The fertilization with manure is very common in Germany. Approximately 27 million pigs and 13 million cows produce manure, and each year, 200 million tons are applied on 45% of the agricultural land (2/3 on arable land and 1/3 on grassland). Too much nitrate in water bodies in the 1970s and 80s led to regulations to reduce the amount of manure and to limit the time of application (i.e. it is not allowed when the on frozen and snow-covered ground). In addition, there are some problems with animal drugs residue.

Practices with "normal frequency":

Agricultural advisory services in Baden-Wuerttemberg are provided by the agricultural technology center Augustenberg (www.ltz.bw.de). They provide different information and pamphlets on BMPs, application of fertilizers etc. Other advisory services for agriculture and forestry concerning extreme weather events can be found on the website of the federal ministry for food and agriculture (http://www.bmel.de/SharedDocs/Downloads/Broschueren/Extremwetterlagen.pdf?__blob=publicationFile).

Contour cultivation is common in Germany. It is only effective on slopes between 2% and 10% and with rainfall that does not exceed a certain amount within a certain period (for steeper or more rainfall, contour stripping (strip cropping) is better, but this is not used in Germany).

Crop selection: Plant breeders make efforts to increase drought tolerance in crops in order to avoid risks of crop failure. A side effect is the reduction of pesticide use and possibly a reduced need for irrigation.

Green fertilizers have been used for a long time in Germany because there are essentially only advantages.

Conservation crop rotation – soil erosion conservation: Crop rotation has been a common procedure in Germany, because it reduces soil erosion, reduces the risk of diseases and increases yields. For a more sustainable agriculture, crop rotation is being promoted today.

Winter crops on at least 20% of the total arable slope lands. This is a very specific number (20), and therefore difficult to judge. I suggest changing it to something like "[…] on a reasonable percentage of the total […]". Winter crops are usually grains. In general, they have higher yields than summer cereals and are very common in Germany, also on flat land. In recent times, older varieties such as "Emmer" is increasingly planted in some parts of Germany.

Maintaining uncultivated arable land after harvesting, on at least 20% of the total arable land of the farm: It is not clear, what is meant here – probably that something should be growing on harvested land for soil protection. This could be a different crop or green fertilizer (see "*Crop rotation*" and "*Green fertilizers"*).

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Practices with "low frequency":

Conservation tillage reduces soil erosion, degradation of organic matter, dehydration and protects soil life. This technique was used on 38% of arable land in Germany in 2009/10, and therefore should move into the category "normal" or "high" frequency.

No tillage is very rare in Germany. It is employed on approximately 1% of the arable land.

Mulching is primarily done on fallow land in Germany.

Organic farming is slowly increasing in Germany, but still at very low levels around 6.4% nationwide. However, the demand for organic products often exceeds the production. One of the reasons for that is the price for organic products. When it is too low, farmers are not willing to switch to organic farming.

Precision farming is not common in Germany, because the initial investment is rather high for smaller farms.

The typology of agricultural crops seems to be the same as "Crop selection" and therefore should move to "normal frequency".

The use of mixed crops is rare because of inefficient harvesting. Different grains, for example, need different reaping heights for a combine harvester.

Cultivating a greater number of varieties: A certain number of varieties are being cultivated in Germany, but they are not many.

*Grassed waterway*s are not common in Germany. The aim should be to not create any surface runoff and to infiltrate water directly on site.

Across slope tillage seems to be the same as "contour cultivation" and should move into the same frequency category.

Fixed retention ponds as well as mobile retention ponds could be in the water management segment. They are not very common in Germany, but sometimes used in erosion-prone areas (esp. vineyards).

Mobile retention elements are not common in Germany.

Reduced tillage depth is very similar to "conservation tillage".

Combined seeding of cover crops and row crops is part of "the use of mixed crops".

Contour stripping (crop rotation) – these are two different things. Contour stripping (= strip farming/ strip cropping) is not the same as crop rotation. Strip farming is not common in Germany, because usually the slopes are not steep enough to make it necessary.

Agriculture – grasslands, permanent agricultural cultures

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Practices with "high frequency":

Well-fare practices at grazing and *proper density of cattle at the pastures* are the same. Both have the same effects: animal well-being, better soil conditions and lower water contamination. The animal density on German pastures is generally not too high. However, the bigger problem for animal well-being is intensive animal husbandry (indoors). This reduces animal well-being and has negative effects on water quality due to manure production and antibiotics.

Vineyards and orchards (38) is not really "grassland agriculture". Grassland in orchards and plantations (apple plantations) is very common in Germany, and grassland in vineyards can be found often.

Maintaining in good conditions of the already existing terraces: Terraces are maintained in good condition and used mainly for vineyards and orchards in Germany. This also, is no grassland agriculture in Germany.

Practices with "normal frequency":

Sustainable agriculture in nature protected areas: In nature reserves, agriculture is not allowed in Germany.

The *establishment of advisory services* for grassland agriculture is not common, but there are already advisory services for agriculture established (see „agricultural advisory services" above).

Dry vegetation burning on permanent pastures is strictly prohibited: It is not strictly prohibited to burn plant waste in Germany. The when and how of burning is regulated by the burn ordinance (BrennVO). The ordinance restricts burning for fire safety reasons, and burning of environmentally damaging substances such as tires. This has nothing to do with pastures, and pastures are not specifically mentioned in the BrennVO. Burning is not allowed in bogs or a water protection zone 1.

Wine production with soil conservation practices (mulching, permanent grass, …) – see "vineyards and orchards" (38) above.

Increasing the efficiency of irrigation systems is starting to become more important in Germany, especially in Northern Germany. Irrigation is luckily rarely needed due to favorable climatic conditions. In Northern Germany, a few soils (sandy) with low water retention need irrigation, and irrigation is increasing because of a general decrease in rainfall in Germany within the last few decades.

Vineyards and orchards (39) and *Vineyards and orchards* (40) have similar descriptions. They are not considered grassland agriculture in Germany and probably have a slightly lower frequency than point 38.

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Training of pesticide users, distributors and advisors: In the "Pflanzenschutz-Sachkundeverordnung" (Pesticide-Competence Ordinance), it is stated that users and distributors need a certain type and amount of knowledge and expertise for pesticide applications and distribution. There is an examination which shows the users/ distributors knowledge.

Reintroduction of forest trees and shrubs is not very common on German pastures, because it has a negative impact on grass growth, but the forest area is steadily increasing, also through natural regeneration. Forests often grow into neighboring pastures.

Removal of old drainage systems in wetland areas is being done in Germany where it is possible. Many times, it is impossible because of the farmers that own the land which provides part of their income. Also, in some former wetland areas, it does not make any sense to try restoring it, because the wetland would naturally disappear again due to decreased rainfall. This point should probably not be in "grassland agriculture" and could be merged with H6 and H8.

Practices with "low frequency":

Extensive agriculture with low input of fertilizers and no emphasis on high yields is increasing in Germany. Extensive agriculture is funded with financial aids to compensate for the decrease in yield.

Low input systems in livestock production are not common in intensive animal farming. Animals under such conditions need fodder and antibiotics. Much of the fodder is grown abroad (e.g. soybeans from Argentina). There is a big difference to livestock on pastures, where grass is harvested locally to feed the animals in winter.

Manual mowing in low intensive and vulnerable land is not common in Germany, because of the high staff costs. It is more common for areas like these to end utilization if necessary.

Application of agroforestry practices is rare in Germany, but the European Agricultural Fund for Rural Development funds a few sites indirectly through subsidies for organic farming in Germany. Also, research on the topic is being done in three different universities in Germany (Freiburg, Dresden, Goettingen). Since the industrial revolution, forest pastures decreased and are rare today. They used to be more common.

Sustainable agriculture in wetland areas could be merged with "manual mowing in low intensive and vulnerable land", because both refer to wetlands in the description.

Forestry

Forests cover 38% and 37% of the territory in Baden-Wuerttemberg and Bavaria, respectively.

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Practices with "high frequency":

Establishment of protective forests: Reading the description of this point, it becomes clear that "protection" refers to protection from floods. In Germany, forests have this function, but it is rare to plant a forest for this purpose. In general, subsidies are available for the restauration of stream beds and flood plains (possible forests) in order to reduce flood risks.

Special management regime for protective forests: Because of the special status of a protective (from floods, but also erosion and other problems) forest, special management is common. Protective forest in mountainous regions is not harvested, e.g. in the Bavarian Alps where it protects against mudflows and avalanches.

Grazing prohibiting domestic animals in forests: In Germany, most (depending on the state) forestry laws do not prohibit, but strongly restrict forest pastures, especially in protective forests. The laws state that a forest must be used in such a way that it retains its environmental functions and services, and that it may be used for timber harvesting. In this context, forest pastures have a negative effect on forests. However, nowadays, the positive impacts of forest pastures are also considered. For example, they have the potential to increase biodiversity.

Restrictions in order to use resources ecologically fragile areas – both the point and the description are difficult to understand. I believe it should be "[…] resources of ecologically […]". In this case, ecologically fragile areas are treated in a special way. However, those areas are very rare nowadays. This point should not be in the forestry segment, because ecologically fragile areas may also be found in other areas.

Small-scale regeneration techniques: The description of this point suggests that "small-scale harvesting" is a more appropriate term. It seems to me that what is meant here is trying to find the balance between harvesting on a scale that does not destroy the stability of the remaining forest and harvesting enough in order to provide a lot of light for natural regeneration. The description also limits this technique to DWPZ and mentions that clear-cuts should be prohibited. Clear-cuts are prohibited in DWPZs in Germany, and only small-scale harvesting is acceptable. Harvesting in areas with already existing natural regeneration is the best option.

Afforestation of clear-cut areas is common in Germany. Clear cuts > 1ha need to be afforested by law in Baden-Wuerttemberg and other states.

Avoidance of clear cuts is common in Germany. In the federal nature conservation law, clear cuts are supposed to be avoided. Clear cuts larger than 1 ha need a special permit in Baden-Wuerttemberg. In Bavaria, all clear cuts must have a permit.

Stop of chemical fertilizers and pesticides, support of manual processing: Pesticides are the last possible option in Germany. Since 2010, no organophosphates are used in forests anymore. Instead, elaborate monitoring of pests is being done to prevent large-scale damages. In nature reserves, it is common to not fight the bark beetle. At first, a lot of – mostly coniferous –trees die, but soon afterwards, a stable mixed forest develops naturally.

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Foster old, huge and vital tree individuals: There are only a few very old (not always huge) tree individuals in Germany. Some of them are located in forests, but many are not. Those that are not, survived on cultural sites of the past such as places to hold court. These individuals are fostered, but do not have much significance in forestry.

Source water protection policy and institutional implications: This point is similar to E 6, and should move into spatial planning as well. Adequate legislative and administrative frames are common in DWPZs in Germany (see the Water Act and drinking water directive).

Afforestation of degraded land: In erosion-prone areas, this is "highly frequent", but otherwise not common. Forests spread naturally on degraded land in Germany.

Avoiding open space is generally the same as "avoidance of clear cuts", but more general. This BMP is the avoidance of missing protective canopy. In Germany, regulations for clear cuts, for afforestation after storm damage and subsidies for afforestation after storm damage help avoiding open areas.

Soil-conserving timber harvest and *timber yield techniques* should be merged into one point. The German Federal Forest Act states that the forest shall be preserved, expanded and sustainably maintained for their economic benefit, their importance for the environment, in particular for the long-term performance of the natural balance, climate, water management, air pollution control, soil fertility, landscape, agricultural structure, infrastructure and recreational value. Adequate harvesting techniques are necessary to achieve this goal. In Baden-Wuerttemberg, there is the so-called "Richtlinie Feinerschliessung" (precision development guidline) which is obligatory in state-owned forests. It puts stricter rules on forest cultivation, e.g. existing forest roads must be used instead of driving into the forest without roads, even if harvesting would be more profitable in an area where there are no forest roads. Additionally, state forests in Baden-Wuerttemberg are FSC-certified which adds restrictions such as large-scale clear cuts and the regular use of pesticides.

The frequency of *soil conservation liming* is different in each state in Germany. Baden-Wuerttemberg does a lot, Bavaria very little. This is due to different opinions on the topic. The technique has positive effects on the soil functions and microbial life, as well as compensating acidification.

Practices with "normal frequency":

Forest fire prevention is more common in Germany than "normal frequency" and should be moved to "high". The burning ordinance (BrennVO) restricts fires to certain areas and requires people to inform the local authorities about planned burning events a few days in advance. To prevent forest fires, an automated early warning system (FireWatch) has been monitoring the forests in Germany since 2002. Optical sensors detect smoke and send pictures and coordinates which facilitate fast responses.

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Policy and legislation initiatives refer to management in disaster risk areas. This should not only be in the forestry segment. The Federal Water Act states that flood management plans must be available, and a floods guideline was established in 2007.

Stabilization of riverside lands and *buffer strips along streams, rivers, dolines and sinkholes* are the same as "vegetated buffer zones".

Limitation of the percentage of timber extraction is similar to "harvesting techniques" and/or "avoiding open spaces". The description of this point limits it to DWPZs and includes very specific numbers for timber extraction (10-25% of the forest stand volume). Limitations on timber extraction, not only in DWPZ, are very common in Germany (see "avoidance of clear cuts").

Maintaining the register for torrential watersheds should probably be moved to water management.

Natural forest succession in case of stable forest ecosystem: Natural forest succession is common for the main tree species beech and spruce in Germany. In some cases, certain tree species are planted such as oak. The paragraph on national parks in the federal nature protection law states that the protection of natural developments in the parks is the central goal. The NBS (National Strategy for Biodiversity) has several goals. One is that there should be natural development processes regulated only by nature on at least 2% of the land area in Germany until 2020. Another goal is 5% of the forest area to be a natural and stable ecosystem with no human input. The assessment of the stability of an ecosystem may be difficult in many cases.

Improve the structural diversity of forest stands is increasing in Germany. In 2014, 68% of the forests were multi-layered which is 28% more than in 2002.

Improve the structural diversity of forest stands is one BMP with different impacts. It should only be mentioned once in the checklist.

Establishment of mixed forests: Mixed stands are common in Germany (76% of the forest land) and their share is growing.

Protection of the gene pool of the autochthonous tree species: Autochthonous tree species are better adapted to their regions and therefore contribute to more stable forests. Therefore, their gene pool should be protected. For example, the ash is currently endangered by a fungus and people are trying to save its gene pool to develop new ash populations from that.

Identification and protection of virgin forests: Virgin forests basically do not exist in Germany. "Close-to-virgin" forests are protected are protected by

Establishment of a continuous cover forest system (CCF) and *continuous cover forest:* These points are covered by "avoiding open space". Is "CCF" an official expression?

Continuous regeneration dynamics: This point concerns (natural) regeneration and avoiding open space. The description in the checklist is very long including also the protection of the gene pool of indigenous tree species.

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An adequate deadwood content has not been common in Germany, but changes are being made. Today, more deadwood is left in the woods instead of taking it all out. Ecologists have recognized the importance of dead wood for biodiversity and nutrient pools in the soil.

Structural thinning operations seem to be the same point as "Improve the structural diversity of forest stands" (see description in the checklist).

Defined canopy cover percentage of forest stands is the same as "avoiding open space" again, only in more detail about what percentage is needed to call it "open" or a lack in canopy cover.

Establishing of field shrubs: Establishing field shrubs on slopes and in the transition zone between forest and farmland is not well accepted among farmers.

Artificial recruitment techniques: The description in the checklist seems to imply that natural regeneration should be supported in case non-indigenous tree species and/or an incomplete mixture of tree species is starting to grow. This is often being done in Germany, e.g. for oak and others.

Adaptive forest management under climate change: Since tree growth and climate change are both slow processes, adaptation is also slow, but Bavaria and Baden-Wuerttemberg already have tree species suitability maps that are incorporated into forest management. A result of adaptive forest management is a decrease in spruce and an increase in beech. There is also a continuous monitoring of vitality and growth in order to recognize negative trends that are caused by climate change.

Fitting integral watershed: The description in the checklist shows that this point refers to torrential watersheds and should probably be merged with "maintaining of the register for torrential watersheds". The description does not explain what is meant by "fitting".

Practices with "low frequency":

Maintaining optimal structure, as compared hydrology, forest ecosystems: The description in the checklist is more understandable. The structure of forests in small watersheds to protect against torrential floods is usually maintained. This point should probably move to "normal frequency".

Use of livestock power for harvesting is not very common in Germany. This point should be merged with "adequate timber harvesting techniques".

Tree species diversity according to the natural forest community: In Germany, the tree species composition of the forests is getting closer to the natural forest community due to forest conversions. The older generation of trees has approximately a ratio of broadleaf:coniferous of 40:60, while for the newer generation of trees, this is 30:70. This point should probably move to normal or high frequency in the future.

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Ecological reconstruction of forests damaged by biotic and abiotic factors: This is too general. Is, e.g., soil protection liming or the point above this one included in this? The description in the checklist is incomplete.

Ecological reconstruction of resinous stands from outside the area: This point is hardly understandable. What does resinous mean in this context?

Water Management

Practices with "high frequency":

Flood risk management plans: A national flood management plan has been started in 2013. Before, flood protection was the responsibility of the federal states. The plan includes both the construction of dikes and an increase in flood plain areas. In May 2017, the HWG II (flood law II) was passed by the federal government. Among other legislation, the law puts strict regulations on heating oil tanks and prohibits new construction of heating oil systems in flood risk areas.

Designation of protected groundwater areas is common in Germany. They are covered in the German Water Act ("Wasserhaushaltsgesetz"). This is the same point as "D 4".

Protection of wetland areas: Wetlands are rare in Germany today, but intact wetlands are usually protected according to the Ramsar-Convention (NATURA 2000). The German Water Act declares that water bodies must be managed in such a way as not to affect wetlands negatively. In accordance with the EU Water Framework Directive, dead water is connected to streams, straightened channels are renatured, buildings are being deconstructed, etc. These measures improve flood runoff and increases flood retention spaces.

Observing and warning system (monitoring, forecast, alarm) for integrated water management: Water allocation in case of drought and water scarcity is optimized in Germany. Due to favorable climatic conditions, water scarcity has always been manageable. Early warning systems in irrigation farming are common (web-Tools).

Hazard and flood risk maps have been drawn in each federal state in the 21st century in Germany. Guideline 2007/60/EG was integrated into national law (the Federal Water Act) in 2010 and states that flood risk maps have to be established for previously defined risk areas until 22/Dec/2013. They have to be checked and updated every six years.

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Eco-morphological investigations along rivers, brooks/torrents: This was done to fulfill th EU Water Framework Directive; it is the basis for renaturation. This point should move to "high frequency".

Establishing water safety plans (water supply): The "Bonner Charta fuer sicheres Trinkwasser" (Bonn charter for safe drinking water) is a national guideline for providing good drinking water and the processes from the source to the consumer. Water safety plans are usually made by the municipalities.

Fish ladders are very common and their numbers are increasing in Germany. There is no national fishing law, each state has their own. The fishing law in Baden-Wuerttemberg (since 1980) states that fish ladders must be installed when constructing facilities that impair fish moving up and down the stream. This ladder must be large enough and payed by the owner of the facility. Facilities that already existed before 1980 must accept the construction, operation and maintenance of a fish ladder by the state in case this is necessary for the preservation of a fish stock, and it does not impair the operation of the facility. It is similar in Bavaria. Other laws responsible for fish ladders are the Federal Water Act, the state Water Acts, the nature conservation law and the animal protection law. Perhaps this point is not a "Water Management" point, but has something to do with aquatic species.

Ex lege protected water related habitats: this is very unspecific. The protection of several different types of water related habitats is common in Germany. They are protected by different environmental, water and other laws, including also Ramsar and NATURA 2000 areas.

Economic measures addressing water scarcity and drought: There are some subsidies to stimulate land users to make them implement measures that prevent water pollution, floods and drought, e.g. see "e*stablishment of protective forests"* and *"subsidies for afforestation*", and https://www.landwirtschaft-bw.info/pb/MLR.Foerderung,Lde/Startseite/Foerderwegweiser.

Revitalization of surface drains, slurry pits: Does this mean "cleaning of surface drains and sealing of slurry pits"? The description in the checklist talks about "cleaning of waste water from agricultural facilities". I am not sure what is meant here. It should probably not be in "high frequency".

Side adapted greening of riparian zones: Similar to C 26 and A 4.

Subsidies for sustainable water management: The description in the checklist talks only about further trainings as obligation for subsidies. This is probably not very common in Germany. The point without the description is much more common.

Greening measures for groundwater protection concerns the increase of land area which is neither agriculturally used nor urbanized. This could be in the segment "Spatial Planning". This

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is not very common in Germany. However, in areas where groundwater protection is the main goal (e.g. in DWPZ), afforestation and permanent grasslands are very common.

Practices with "normal frequency":

Establishment of sanitary protection zones (DWPZ): Many DWPZs exist already. The establishment of new ones in order to increase the sustainability of locally produced drinking water is not common, but a lot of areas are preemptively reserved in case some day, drinking water will be produced there. This point should move to "high frequency".

Protection against accidental pollutions: In order to decrease the probability of accidental pollution in DWPZs, strict rules are enforced, e.g. unauthorized driving or the handling of harmful substances (e.g. oil) are not allowed, and the construction of bridges across drinking water reservoirs is prohibited. Several laws are concerned with the general protection of water bodies, not only DWPZs. The federal Emission Control Act, for example, forces the industry sector to use state-of-the-art technology to reduce emissions and the risk for accidents.

Integrated nutrient pollution control: this is increasing by increasing the knowledge of stakeholders about nutrient loss into water bodies, by the new fertilizer law, and by subsidizing certain practices such as establishing vegetated buffer zones around water bodies.

Trainings, awareness raising activities: The number of awareness raising activities is increasing. Today, some trainings are required by law, e.g. courses about water bodies in order to avoid activities that enhance floods.

Protection of floodplains: The floodplains of the larger rivers in Germany have lost on average two-thirds of their former area. On many parts of the Danube, only 10-20% of the flood plains are still intact. The floodplains are used as grassland (47%), are used agriculturally (27%), are forests (13%) or urbanized (6%). The area designated for flood plains may increase in Germany in the future (see D 9). Further construction on floodplains is generally not allowed (with exceptions) according to flood laws and flood management plans.

Green infrastructure measures of water courses regulation: This is very broad and many of the points in the description are already individual points in the BMP checklist (fish ladders (D 13), vegetated buffer zones (A 4), stabilization of river banks (C 13), restoration of channels (H 1), streams renaturation (H 7)).

Public information and education: Since 2009, information campaigns concerning flood protection have been launched in a few states in Germany to involve citizens in taking precautions themselves. Bavaria is one of those states (information on https://www.elementar-versichern.de/vorsorgemassnahmen), Baden-Wuerttemberg not. This point could be merged with "*Trainings, awareness raising activities".*

Removal, prevention and monitoring of invasive plants along rivers and streams: this is not very common in Germany, but it is being done when it benefits the economy at least indirectly,

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when it is a human health threat (e.g. Heracleum mantegazzianum) or for nature conservation reasons (e.g. Impatiens glandulifera).

Revitalization of waste land/ brownfields: the waste land area, especially in cities, has been increasing in Germany since 1993. The "nationale Nachhaltigkeitsstrategie" (national strategy for sustainability) has the goal – among other things – to decrease land consumption to 30 ha/day until 2020. The development of waste land is a key element for reaching this goal. In this case, "revitalization" does not mean that the land will be transformed into a more natural environment, but that it will be recycled and reused. This can slow the consumption of undeveloped land. Waste land development in cities can also be found in the "Baugesetzbuch" (building code).

Connection of old river streams to the main stream: The connection of rivers and their renaturation has become increasingly important in Germany. After the catastrophic flood events in 2013, the federal and state governments created the "Nationale Hochwasserschutzprogramm" (National Flood Protection Program). The goal is to give rivers and creeks more space. Additionally, the government decided upon a federal program called "Blaues Band" (blue ribbon). This means more money for large-scale renaturation of federal waterways, especially the 2800 km of waterways that have lost their importance for cargo ships.

Practices with "low frequency":

High roughness of slopes in the side valleys/ contributory valleys: Hot spot areas for flood development are mapped. In several areas, the deconstruction of sealed surfaces is being done showing positive effects on flood runoff, e.g. in Baden-Wuerttemberg there is a program to remove bituminous pavement/ asphalt on forest roads. However, the reason for this concerns the removal of toxic tar from the forest.

Spatial planning

Urbanization and infrastructure use 15% and 12% of the territory in Baden-Wuerttemberg and Bavaria, respectively.

Practices with "high frequency":

Incorporation of water management plans into physical (spatial) planning: Water management plans are incorporated into spatial planning, e.g. new settlements have certain rainwater drainage requirements, and construction is limited in flood hazard areas and floodplains. The legal basis for flood protection is the EU Flood Directive which is included in the German Water Act. It is not allowed to extend existing structures or plan new ones in floodplains (except for

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harbors and shipyards). However, the authority which licenses new development areas, is allowed to make exceptions, e.g. when no other options for development can be found or when the new area is directly adjacent to an already existing settlement.

Land reservation for potential drinking water resources: Potential land for future drinking water resources is sometimes reserved in Germany, and there are many already occupied areas for drinking water protection.

Regional plans or regional (landscape) development concepts: The legal basis for spatial planning is the "Raumordnungsgesetz" (federal spatial planning law) and the "Landesplanungsgesetze der Länder" (land planning laws of the states). The guiding principle of spatial planning in Germany is a sustainable space development. In order to achieve this guiding principle, conflicts of interests have to be managed and the demands on the land must be assessed. The responsibility for regional planning lies with the states. They implement them through nationwide plans (regional development plans). The Federal Government is essentially responsible for monitoring land use.

Definition of river corridor and riparian area (land parcels/ cadastre): Water corridors, riparian zones, floodplains, water courses, etc. are properly defined within land parcels in Germany. I do not know what is meant by "… shall be solved from point of view of property relations" in the description in the checklist. This probably has something to do with property rights and defining where the boundaries are to water courses and riparian zones.

Ecological structures within the landscape: This point should probably move to "normal frequency", because there are no "required space and locations reserved". Part of the guiding principle in the spatial planning law (see point above: "*Regional plans or regional (landscape) development concepts"*) is to establish a connected "free space system".

Practices with "normal frequency":

Wide discussion process including local activities and stakeholders: The landscape planning process usually includes stakeholders and communities. Some steps in the planning process are public, e.g. development plans and plans for flood retention basins. Also, there has been an extensive participation process for flood risk maps

Local development concepts: Local planning including stakeholders and including protective zoning for open space are common, and more common than regional plans.

Land use coordination in river catchments by inter-municipal cooperation: Balancing upstream-downstream relations is common. This point seems to be a special case of "local development concepts".

Practices with "low frequency":

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none

Technical Measures – Agriculture

Practices with "high frequency":

Retarding basins: This is a water management BMP. Retarding basins to prevent flooding are common in Germany.

Practices with "normal frequency":

Flood control canals, lateral canals and connecting canals: There are many canals in Germany for flood control; new ones are basically not being built. On the contrary, and also for flood protection, the "Nationale Hochwasserschutzprogramm" (National Flood Protection Program) was created with the goal to give rivers and creeks more space (renaturation).

Sediment trapping reservoir: Drinking water reservoirs always, and usually also the flood control dams, have sediment traps installed. However, sediment trapping is not actively done by constructing new reservoirs. More common are vegetative buffers to trap sediments. The emphasis in Germany lies more on preventing erosion than on sediment trapping (see §17 Federal Soil Protection Law).

Hedges for splitting parcels are not very common in Germany due to the "Flurbereinigung" (land consolidation) after World War II. This was done to increase efficiency and move towards conventional agriculture. Today, hedges are encouraged and existing hedges are taken care of, but the establishment of new hedges in order to split parcels is not common. This point should move to "low frequency".

Sediment control dams: dams to break slope lengths are rare in Germany. This point should move to "low frequency".

Terraces are common in vineyards in Germany. This point could be merged with B 14.

Water retention strips (furrows): The description in the checklist is not clear, but this point seems very similar to "*Ditches*", but also to "*retention spaces within the catchment"* (see chapter 9.3) and "*Infiltrating pools".* All these points should be in "low frequency".

Practices with "low frequency":

Sediment trapping pool: This is the same as "*sediment trapping reservoir*" only on a smaller scale. They should be merged if I understand it correctly.

Technical Measures – Forestry

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Practices with "high frequency":

none: there was no technical measure marked as "highly frequent" in forestry in Germany. This does probably not reflect the actual situation.

Practices with "normal frequency":

Road runoff: This point should be named "Forest roads with proper drainage", because road runoff is not a BMP. The federal and state forestry laws contain regulations for erosion in forests including the roads. Therefore, concrete forest roads are being changed into gravel roads to increase infiltration, and drainages are installed to channel the runoff into the forest at regular intervals. The drainages usually work well in Germany.

Rehabilitation and recultivation of damaged forest terrains: Damaged forests (e.g. storm or clear cut) are usually taken care of in Germany. In Baden-Wuerttemberg (according to state law), clear cuts must be afforested at the expense of the owner. This is also the case in most other German states.

Retention pools: The amount of natural and artificial retention pools is increasing slowly in Germany, especially when there are flood risks.

Practices with "low frequency":

Road removal is not very common in Germany. The right amount of forest roads depends on how the forest is used.

Maintaining of existing and building new infrastructure in the affected of erosion regions: According to the checklist, this point refers to structures that slow the erosion process. This is not very common in German forests.

Technical Measures - Water Management

Practices with "high frequency":

none: there were no technical measures marked as "highly frequent" in Germany. This does probably not reflect the actual situation.

"Flood control dams and levees" should be moved to high frequency. It is rare to build new ones, but there are a lot of them already installed.

Practices with "normal frequency":

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Flood control dams and levees: see the point above.

Floodplains protection to spill and store (flood wave transform) flood water: This point is similar to I 1. Floodplains protection is increasing in Germany. After the catastrophic flood events in 2013, the federal and state governments created the "Nationale Hochwasserschutzprogramm" (National Flood Protection Program). The goal is to give rivers and creeks more space. Additionally, the government decided upon a federal program called "Blaues Band" (blue ribbon). This means more money for large-scale renaturation of federal waterways, especially the 2800 km of waterways that have lost their importance for cargo ships. However, many floodplains are still being used for new settlement development.

Restoration of wetland areas: This is the same point as H 8 (*Restoration of old and recent and establishment of wetlands*). There are not many wetlands left in Germany. The ones that are, are being protected and some are being restored. If the moisture input (e.g. annual precipitation) is not enough to maintain the wetland, it does not make sense to restore it.

Revitalization of streams: This is similar to the points concerning "floodplains protection". After the catastrophic flood events in 2013, the federal and state governments created the "Nationale Hochwasserschutzprogramm" (National Flood Protection Program). The goal is to give rivers and creeks more space. Additionally, the government decided upon a federal program called "Blaues Band" (blue ribbon). This means more money for large-scale renaturation of federal waterways, especially the 2800 km of waterways that have lost their importance for cargo ships.

Strict construction of retention structures accompanying important sealed surfaces: Many cities in Germany have bad water retention. New settlements, however, are required to have retention areas or build buffer storages.

Creek renaturation: This point should be merged with H 1 (Revitalization of streams).

Practices with "low frequency":

High roughness of floodplains to increase flood water retention is not a common practice in Germany due to intensive land use of floodplains and various conflicts of interest. *Flood control dams and levee*s are usually used instead to protect developed areas.

Retention spaces within the catchment: For flood control, retention basins are constructed, and within the "National Flood Protection Program" (see chapter 9.2) and the "Blaues Band" (see chapter 9.2), retention space will be created through renaturation and other measures. These are measures that haven't been implemented on a large scale yet.

Construction of retention volumes within the catchment: this is similar to the point above. Construction of retention basins to protect settlements form floods is being done where necessary.

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Technical Measures - Spatial Planning

Practices with "high frequency":

To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures: This point should actually move to "low frequency" because of the word "reserve". There is no reserved space for future structures. However, there is space that is occupied by such structures, e.g. water reservoirs, retention basins and renaturation areas.

Conserve water retention and runoff structures in local land use planning: same as point above.

Proclamation of particular land particle as a water resource: When an area of land is designated as a water resources protection area, it is registered and considered in spatial plans in Germany. The Federal Water Act and the state water laws dictate special measures and restrictions for such areas and they are usually implemented. This point is similar to C 29 and E 6.

Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans: The description in the checklist refers to "settlement and infrastructure facilities". Therefore, this point is very similar to H 10 (*Strict construction of retention structures accompanying important sealed surfaces).* New settlements are required to have retention areas or build buffer storages. This point would also be similar to I 1 if other areas were included (not only settlements and infrastructure).

Practices with "normal frequency":

Zones with high potential flood risks have closure for constructing activities: Buildings and infrastructure are usually not built in areas with high flood risk in Germany. The legal basis for flood protection is the EU Flood Directive which is included in the German Water Act. It is not allowed to extend existing structures or plan new ones in floodplains (except for harbors and shipyards). However, the authority which licenses new development areas, is allowed to make exceptions, e.g. when no other options for development can be found or when the new area is directly adjacent to an already existing settlement. The construction of oil-based heating systems is prohibited in flood risk areas, and old ones have to be upgraded to make them withstand flood events without major damages.

Strict incorporation of complete waste water treatment plant into each settlement: This point should move to "high frequency". Waste water must be treated according to the Federal Water Act (WHG).

Reservation zones: This is very general, also the description in the checklist. It suggests that construction should be prohibited in zones of danger ("no clear definition of danger"). For

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flood risk, see "*Zones with high potential flood risks have closure for constructing activities*" above.

Rainwater is infiltrated directly at the parcel: Local infiltration is common in Germany; problems with too much water accumulation are mainly concentrated in the cities where large areas are sealed. Infiltration directly at the parcel where the rain falls depends also on the size of this parcel. How small does the parcel have to be to make it a BMP?

Land policy for flood retention and runoff: The legal and financial background of land acquisition for measures of flood retention and runoff are improving in Germany. The federal and state water laws, soil laws and several programs (e.g. "Blaues Band" mentioned above) facilitate measures that help water retention and decrease flood risk. I believe that the word "land" is unnecessary in this point.

Rainwater is infiltrated directly at the parcel: same point as above! The description in the checklist is slightly different (referring to the regulations), but essentially these points are the same.

Incorporating ecological elements into landscape matrix: see point E 1.

Natural measures for water retention in urban zones are increasingly seen in cities in Germany. For example, new buildings must include measures for infiltrating precipitation such as green roofs (lower runoff), and permeable surfaces of paths and roads.

Reducing the increase of sealed surfaces within settlement areas: This sentence is confusing. The sealed surface does usually not increase in areas that are already settlements. Sometimes, settlements have renewal plans that include a reduction in sealed surface area. For planned settlements, less sealed surface is usually part of the plan, also for aesthetic reasons. A "greener" city for a better standard of living has gained importance in Germany.

Keeping low percentage of sealed surfaces within urbanization is the same as the point above (I 12).

Incorporating of artificial wetlands into urbanization is not common in Germany, but is being done on a small-scale primarily for reasons that concern the improvement of a cities living standard.

Maps indicating the degree of negative hydrological effects of surface sealing: In spatial planning, geological (e.g. regarding permeability) and topographical maps are used in the planning of settlement areas to determine the hydrological situation. However, maps indicating the degree of negative hydrological effects are not usual. This point should probably move to "low frequency".

Practices with "low frequency":

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To *promote buildings adapted to (low) flood hazards* is not common in Germany. In the past, flood-adapted buildings have been built, e.g. in Cologne on the Rhine, but today, new buildings are usually prohibited in flood areas.

Areas of interests, typical interdisciplinary implementation strategies

Land-consolidation projects

Practices with "high frequency":

Permanent grassing: According to the description in the checklist, this point refers to grass that grows permanently on steep slopes. In case steep slopes are not forested areas, permanent grass is the usual vegetation form, because it is too steep for agriculture other than animal husbandry. The second part of the description is a "change in the boundaries of agricultural land". I do not know what is good about that.

Permanent afforestation: see point above. Steep slopes are usually forested areas in Germany. However, "afforestation" is the wrong word, because nothing can be permanently afforested – eventually there are enough trees.

Change of size and shape of individual parcels: This is not a BMP, especially when the parcel size increases, e.g. when consolidating the land. On the contrary, land consolidation increases field size and reduces the amount of ecological structures such as hedges. Land consolidation ("Flurbereinigung") in Germany after World War II was heavily criticized by environmentalists. Today, environmental issues are being included in land consolidation projects.

Practices with "normal frequency":

Modified crop rotation: This is similar to A 7 and A 8 ("Conservation crop rotation – soil erosion conservation" and "Conservation crop rotation – soil properties conservation").

Practices with "low frequency":

Readjustment of land for public projects (e.g. flood prevention, nature conservation): the description in the checklist does not make much sense. "Readjustment" and "transfer" (see checklist) are probably the wrong choice of words. Public bodies in Germany acquire land for flood control or environmental measures if necessary.

Multi-purpose development projects (e.g. water reservoirs,..): My interpretation of this point is that projects should be encouraged that do not only have one, but several positive influences on soil, water and flood protection. This is automatically true in most cases. For example, a decrease in soil erosion will also lead to better water quality. This is the reason why this point could have a higher frequency – however, most projects are initiated for a single purpose.

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Surface water resources protection zones

Practices with "high frequency":

Monitoring of surface waters: Water bodies have been increasingly monitored in Germany since the 1960s and 70s. When the EU Water Framework Directive (WFD) was implemented in 2000, monitoring both surface water and groundwater has become more intensive than before, and EU-wide standardized methods where introduced. The focus of monitoring activities had been "clean water" which changed to "good ecological conditions" for surface water bodies with the implementation of the WFD. As a consequence, not only the water quality (chemical conditions), but also biological conditions such as phytoplankton and fish are monitored today.

Defining areas for the protection of aquatic species: this point is strongly linked to points concerning river restorations (see points "*Floodplains protection to spill and store (flood wave transform) flood water"* and *" Revitalization of streams").* In 2006, Germany submitted the required amount of protection areas to the EU according to NATURA 2000. Some of these are habitats for aquatic species.

Identifying protected areas for habitats and species where water is an important factor such as floodplains: The protection of terrestrial areas which influence aquatic habitats is usually linked to the protection of aquatic areas, and therefore also considered in the point above. In order to solve conflicts between land users and protected species (where water is an important factor), protected areas for habitats need to be identified. In case of the reintroduced and strictly protected beaver, for example, a beaver management system has been established in several German states (especially Bavaria). The solutions offered within the beaver management include land purchasing or land swaps where the state/municipality swaps their land with privately owned riverside land. State-owned land at rivers and streams may then become a protected habitat.

Water protective zones for drinking water supply: see "*Establishment of sanitary protection zones (DWPZ)".* According to the Federal Water Act and the state water laws, special restrictions apply to drinking water protection zones. This is usually strictly enforced in Germany.

Monitoring of production, import and use of chemical products: Chemical products that are hazardous to water, are usually being strictly monitored in Germany. The legal basis is the AwSV (Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen - Ordinance for facilities about the handling of water-polluting substances). It states that operators of certain facilities must monitor their facilities and provide a monitoring-plan. The ordinance also includes regulations for transportation.

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Prohibition of irrigation of arable land with waters that do not have drinking water characteristics: "Drinking water characteristics" is not needed for irrigation. Raw water such as rainwater is usually good for that purpose as long as it is not polluted. Additionally, it is environmentally friendlier, because no or fewer treatment processes are needed. Recommendations for irrigation water in regards to hygiene can be found in a norm (DIN 19650: "Bewässerung – Hygienische Belange von Bewässerungswasser" (Irrigation – Hygienic issues of irrigation water). The norm determines limit values for certain pathogens and for different areas of application. For chemical parameters: the BBodSchV (Bundes-Bodenschutz- und Altlastenverordnung; federal soil protection and contaminated sites) restricts the accumulation of contaminants in soils.

Practices with "normal frequency":

Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots: The Fertilizer Ordinance of 2017 generally prohibits the use of fertilizers on the mentioned plots. There are exceptions, e.g. for lime fertilizers on frozen soil, for fertilizers on permanent grassland and for solid manure. These exceptions have restrictions concerning the amount.

Stimulation of farmers to implement soil conservation and *Stimulation of land owners to implement soil conservation:* The direct payments by the EU to farmers are linked to environmental measures (Cross Compliance) and may be cut if the farmer does not implement them. There are a few national and regional financial subsidies for farmers and land owners. For example, Baden-Wuerttemberg has a project called MEPL (Maßnahmen und Entwicklungsplan Ländlicher Raum) to strengthen regional agriculture and to fund nature conservation. MEPL III will last from 2014-2020 and consists of 16 individual funding programs, the most important one being FAKT (Förderprogramm für Agrarumwelt, Klimaschutz und Tierwohl – Funding Program for Agricultural Environment, Climate Protection and Animal Welfare). MEPL includes a significant strengthening of organic farming, animal welfare, sustainability, innovation, knowledge transfer and local development strategies. The goals in MEPL II (2007-2013) were largely implemented successfully.

Proper land use and spatial planning within the areas of interest: This is too general. Points included in this one are "*Regional plans or regional (landscape) development concepts"* and *"Incorporation of water management plans into physical (spatial) planning".*

Practices with "low frequency":

none

Groundwater resources protection zones

Practices with "high frequency":

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Monitoring of groundwater: Water bodies have increasingly been monitored in Germany since the 1960s and 70s. When the EU Water Framework Directive (WFD) was implemented in 2000, monitoring both surface water and groundwater has become more intensive than before, and EU-wide standardized methods where introduced. Groundwater monitoring is primarily done by the federal states. There are two main measuring networks. The EUA network investigates the water in many locations to get a general overview of the groundwater conditions. The data is submitted to the Federal Agency for the Environment (Umweltbundesamt) which compiles and submits them to the European Environment Agency in Copenhagen. The other network measures nitrate concentrations in the groundwater which was established due to the EU nitrate ordinance.

Integration of groundwater protection zones into spatial planning: Water protection areas are regulated in the WHG (Water Act). They consist of three zones with different regulations. For example, in zone I and II, construction and agriculture are prohibited. These rules are usually implemented and must be considered in spatial planning.

Prevention of direct wastewater discharge into groundwater: Why is this point not considered for surface water in the surface water section? The WHG (Water Act) prohibits wastewater discharge into ground and surface waters. Exceptions need approval and can only be authorized when the amount and the harmfulness are determined to be very low.

Prohibition of the use of chemical fertilizers in the protection zones: In drinking water protection areas, the handling of substances that are hazardous to water is prohibited in all zones I – III (WHG). This is usually implemented. Same as point A 34.

Building bans and building restrictions in groundwater protection zones: In drinking water protection zones I and II, building is prohibited (see WHG) in Germany.

Practices with "normal frequency":

Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots: see the same point above.

Prohibition of the use of natural and chemical fertilizers in the protection zones: both natural and chemical fertilizers are prohibited in drinking water protection zones (see the similar point above).

Stimulation of farmers to implement soil conservation and *Stimulation of land owners to implement soil conservation:* The direct payments by the EU to farmers are linked to environmental measures (Cross Compliance) and may be cut if the farmer does not implement them. There are a few national and regional financial subsidies/compensation payments for farmers and land owners.

Practices with "low frequency":

none

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4.6 Hungary

The partner provided BMP list of frequencies and comments on the BMS analysis within the checklist. The answers were processed within the main chapters above.

4.7 Romania

The assessment of the Best Management Practices (BMP) used in the Danube region shows that, in Romania, many of them are occasional used, under suitable conditions (44%) and some of them are used frequently (22%). Sectors where are used with the most high frequency are: forest management and technical measures for surface water protection zones. Sectors where are used with a lower frequency are: water management, technical measures for forestry, land consolidation and agriculture.

Out of 202 Best Management Practices identified at the Danube region level, in Romania are used with high frequency 44 practices in 9 activity segments out of 12. The most of them are used in forestry (20 BMP) followed by water management (7 BMP) and Surface Water Protection Zones (5BMP). Just a few BMP's are used with high frequency in grass agriculture (4BMP); Ground Water Protection Zones (3 BMP), Spatial Planning (2BMP) and one BMP in each of the following segments: arable agriculture; Technical Measures in Agriculture, Technical Measures in Spatial Planning (Conserve water retention and run off structures in local land use planning).

According to the assessement the most frequent BMP's used in forestry are: forest fire prevention; identification and protection of virgin forest; the extension of afforestion in arid areas; natural forest succession; policy and legislation initiatives; establishment of protective forests, special management regime for protective forest, grazing prohibiting domestic animals in forests, restrictions in order to use resources ecologically fragile areas.

BMP's in water sector, frequently used in Romania are: establishment of sanitary protection zones, flood risks management plans, designation of protected ground water areas, hazard and flood risks maps, monitoring of surface waters and groundwater, defining areas for the protection of aquatic species, identifying protected areas for habitats and species where water is an important factor, restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots, building bans and building restrictions in groundwater protection zones.

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In agricultural sector most frequent used BMP's are: sustainable agriculture in nature-protected areas and wetland areas, establishment of advisory services, increasing the efficiency of irrigation systems, crop selection, ditches.

Looking at the assessement of the BMPs used with normal frequency, in Romania are used 89 BMP's out of 202. Again, most of them are used in forestry sector (19), followed by water management (13 BMP) and arable agriculture (12 BMP).

Most representative BMP's used with normal frequency in forestry are: limitation of the percentage of timber extraction, afforestation of clear-cut areas, buffer strips along streams, rivers, dolines and sinkholes, selection cutting in forests, establishment of mixed forests.

For water management sector the most representative BMP's used in Romania are: protection of wetlands areas, observing and warning (monitoring, forecast, alarming) system for integrated water management, establishing Water safety plans (water supply), monitoring of production, import and use of chemical products, integration of groundwater protection zones into spatial planning, prevention of direct wastewater discharge into groundwater, prohibition of the use of chemical and natural fertilizers in the protection zones.

Regarding the agricultural sector the assessement shows that the BMP's that are used most with normal frequency in Romania are: fertilizer application plan, pesticides application plan, flood control canals, lateral canals and connecting canals. Not so frequent but still used are the following practices: proper irrigation applying, vegetated buffer zones along water bodies, vineyards and orchards, maintaining in good conditions of the already existing terraces, retarding basins.

For the activity sector spatial planning, practices like: closure for constructing activities in zones with high potential flood-risks, reserving space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures, strict incorporation of complete waste water treatment plant into each settlement, are used the most in Romania. With less uses are the following practices: rainwater infiltrated directly at the parcel, integration of necessary retention works in spatial planning, e.g. when rezoning land use plans, incorporating ecological elements into landscape matrix, promote buildings adapted to (low) flood hazards, reducing the increase of sealed surfaces within settlement areas.

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There are as well some BMP's used for land consolidation in Romania with normal frequency: permanent afforestation, modified crop rotation and change of size and shape of individual parcels. None of the land consolidation practices identified in this study are used with high frequency in Romania.

In agriculture, as in any field of the economy, no system can be considered sustainable if the farmer and the society he is part of is not beneficial, that is, economically unsustainable. This, in fact, is the only long-term alternative to the environmental crisis generated by human society.

Organic and sustainable agriculture refers to those agricultural practices that promote methods that are economically viable, environmentally friendly and take into account public health issues. Agriculture needs to focus on aspects other than the economic one, in order to create conditions not only for us but also for the generations that follow.

The agricultural practices beneficial to the climate and the environment are: crop diversification, maintaining the existing permanent grassland area and the presence of an area of ecological interest on the agricultural area of the holding.

Crop rotation is a technological component of vital importance in organic farming systems. In rotation, soil fertilization methods should be applied to ensure the improvement and maintenance of fertility.

The sustainable agriculture is the best perspective for rural areas, able to provide an integrated solution for economic, social and environmental issues.

The main strengths refer to the following:

- Romania's high agricultural potential;
- Allocating significant financial packages for the development of agricultural holdings;
- Financial stability in the allocation of European funds;
- Attracting young people to productive agricultural activity for the market in the coming years;
- The Romanian market for agricultural and agri-food products has the prospect of further absorbing an increase in domestic agricultural production;

- Increase foreign direct and national direct investment;
- The existence of a wide range of traditional products;
- Existence of marketing networks for large holdings;
- Developing supermarket chains;
- Organic farming in development;
- Particular potential for renewable energy.

The following are some examples of best practice in Romania:

- Cultivation of agricultural land with hybrid varieties
- The presence or possibility of irrigation facilities, especially in areas vulnerable to drought, as well as those for drainage, in areas with less permeable soils or temporary excess of humidity (wetlands).
- Selection of resistant varieties/hybrids or high tolerance to scorching heat, drought and excess moisture, cold/frost, diseases and pests;
- The use of mixed crops, intercalated crops, permanent crops, double crops on the same parcels or on the farm to increase biodiversity;
- Organizing crops with green fertilizers in order to improve the physical, chemical and biological properties of degraded soils.
- Cultivating a greater number of varieties in each agricultural year, with different vegetation periods, to better capitalize on climate conditions, especially the humidity regime in the soil and the graduation of agricultural works in the field;
- Reintroduction of trees and shrubs
- by elaborating the silo-pastoral arrangements, to improve environmental conditions, livestock grazing and recreation;

Manual mowing where the land has high humidity and, especially in floodplain meadows, where it is practically impossible to use agricultural machinery.

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4.8 Serbia

The partner provided BMP list of frequencies and comments on the BMS analysis within the checklist. The answers were processed within the main chapters above.

4.9 Slovenia

The partner provided BMP list of frequencies and comments on the BMS analysis within the checklist. The answers were processed within the main chapters above.

5 APPENDIX 1 - frequency list of BMP

Every practice is listed in the full list of the practices - from the most frequent to the least frequent in Danube countries.

Letters (A – L) joined to numbers of practices indicate on corresponding Land Management Segment (Table 1).

Table 5: Full list of the practices listed from the most frequent to the least frequent in Danube countries.

No.	Topic No	Segment	IF	High	Normal	Measures
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Defining areas for the protection of aquatic species
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of groundwater
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI RS	DE HR	Establishment of sanitary protection zones (DWPZ)
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
67	C 11	C - Forestry	**62**	AT BG HU RO SI RS	CZ DE HR	Policy and legislation initiatives
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI RS	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR RS	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI RS	HR HU RO	Integration of groundwater protection zones into spatial planning
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU RS	Stubble burning strictly prohibited
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU RS	Incorporation of water management plans into physical (spatial) planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI RS	HU RO	Prevention of direct wastewater discharge into groundwater
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring
34	A 34	A - Arable Agriculture	**56**	AT CZ DE HR SI		Limitation of fertilizer and pesticide application on DWPZ
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI RS	BG CZ DE HU	Agricultural advisory services

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108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI RS	Flood Risks Management Plans
115	D 16	D - Water Management	**53**	CZ DE RO SI RS	AT BG HR HU	Designation of protected ground water areas
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI RS	Prohibition of the use of chemical fertilizers in the protection zones
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
63	C 7	C - Forestry	**51**	BG DE RO SI RS	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI RS	AT HR HU	Special management regime for protective forest
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO RS	AT HR HU	Restrictions in order to use resources ecologically fragile areas
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI RS	Hazard and flood risks maps
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
129	E 6	E - Spatial Planning	**51**	AT DE HR SI RS	BG HU RO	Land reservation for potential drinking water sources
152	H 4	H - TM Water Management	**51**	AT CZ HU SI RS	BG DE HR	Flood control dams and levees
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI RS	BG HR HU	Water protective zones for drinking water supply
31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
95	C 39	C - Forestry	**49**	BG DE RO SI RS	CZ HR	Small-scale regeneration techniques
202	L 9	L - GW Protection Zones	**47**	AT CZ RO SI	DE	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
127	E 4	E - Spatial Planning	**44**	CZ HR SI RS	AT BG DE HU RO	Local development concepts
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO RS	Zones with high potential flood-risks have closure for constructing activities
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI RS	Monitoring of production, import and use of chemical products

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43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI RS	Dry vegetation burning on permanent pastures is strictly prohibited
68	C 12	C - Forestry	**42**	BG RO SI RS	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI RS	DE HR HU RO	Limitation of the percentage of timber extraction
143	F 12	F - TM Agriculture	**42**	CZ HR SI RS	AT BG DE RO	Flood control canals, lateral canals and connecting canals
159	I 1	I - TM Spatial Planning	**42**	BG DE SI RS	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO RS	Strict incorporation of complete waste water treatment plant into each settlement
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI RS	Prohibition of the use of natural and chemical fertilizers in the protection zones
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO RS	Afforestation of clear-cut areas
72	C 16	C - Forestry	**40**	DE RO SI RS	CZ HR HU	Avoidance of Clear-Cuts
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
160	I 2	I - TM Spatial Planning	**40**	DE RO SI RS	BG CZ HR	Conserve water retention and run off structures in local land use planning
71	C 15	C - Forestry	**38**	AT BG SI	DE HR	Maintaining of the register for torrential watersheds
86	C 30	C - Forestry	**38**	CZ DE RO	AT HU	Stop of chemical fertilizers and pesticides and herbicides, support of manual processing
189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI RS	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
35	A 35	A - Arable Agriculture	**36**	CZ DE SI	HR	Subsidies for farmers for limitations on DWPZ I
84	C 28	C - Forestry	**36**	RO SI RS	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
4	A 4	A - Arable Agriculture	**33**	DE SI RS	AT BG HR HU RO	Vegetated buffer zones along water bodies
38	B 2	B - Grass Agriculture	**33**	DE SI RS	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI RS	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
82	C 26	C - Forestry	**33**	BG SI RS	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI RS	AT CZ HR HU RO	Selection cutting in forests
94	C 38	C - Forestry	**33**	HU RO RS	BG CZ DE HR HU	Improve the structural diversity of the forest stands
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control

126	E 3	E - Spatial Planning	**33**	CZ DE RS	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
37	B 1	B - Grass Agriculture	**31**	AT SI RS	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)
62	C 6	C - Forestry	**31**	HU SI RS	BG DE HR RO	Establishment of mixed forests
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO RS	Maintaining optimal structure, as compared hydrology, forest ecosystems
79	C 23	C - Forestry	**31**	BG RO RS	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
80	C 24	C - Forestry	**31**	DE SI RS	CZ HR HU RO	Foster old, huge and vital tree individuals
85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI RS	Road runoff
166	I 8	I - TM Spatial Planning	**31**	DE SI RS	AT CZ HR HU	Proclamation of particular land particle as a water resource
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI RS	Reservation zones
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO RS	Stimulation of farmers to implement soil conservation
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO RS	Stimulation of farmers to implement soil conservation
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE RS	Contour cultivation
14	A 14	A - Arable Agriculture	**29**	DE SI RS	AT CZ HR	Fertilization with manure and compost – organic matter supply
45	B 9	B - Grass Agriculture	**29**	BG DE RS	AT CZ SI	Proper density of cattle at the pastures
61	C 5	C - Forestry	**29**	DE SI	BG HU RO RS	Avoiding open space
77	C 21	C - Forestry	**29**	HR SI RS	BG HU RO	Tree species diversity according to the natural forest community
102	D 3	D - Water Management	**29**	DE HU	AT CZ HR	Ex lege protected water related habitats
122	D 23	D - Water Management	**29**	AT SI	BG DE RO	Trainings, awareness raising activities
130	E 7	E - Spatial Planning	**29**	DE SI	CZ HR RO	Definition of river corridor and riparian area (land parcels / cadastre)
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI RS	Increasing the efficiency of irrigation systems
65	C 9	C - Forestry	**27**	RO SI	DE HU RS	Identification and protection of virgin forests
73	C 17	C - Forestry	**27**	RO SI	BG DE RS	Establishment of a Continuous Cover Forest System (CCF)
106	D 7	D - Water Management	**27**	DE HR	CZ SI	Economic measures addressing water scarcity and drought
119	D 20	D - Water Management	**27**	DE RO	CZ SI RS	Revitalisation of surface drains, slurry pits
132	F 1	F - TM Agriculture	**27**	HR RO	CZ DE	Ditches

142	F 11	F - TM Agriculture	**27**	DE SI	HR RO RS	Retarding basins
180	J 4	J - Land Consolidation	**27**	CZ DE	HR SI RS	Permanent grassing
76	C 20	C - Forestry	**24**	RO RS	BG CZ DE HR HU SI	Continuous regeneration dynamics
81	C 25	C - Forestry	**24**	SI RS	AT BG CZ DE HU RO	Adequate dead-wood content
96	C 40	C - Forestry	**24**	RO RS	AT BG CZ DE HR SI	Structural thinning operations
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI RS	Permanent afforestation
39	B 3	B - Grass Agriculture	**22**	SI RS	AT BG CZ DE HU	Vineyards and orchards
46	B 10	B - Grass Agriculture	**22**	BG RS	AT CZ HU RO SI	Low input systems in livestock production
54	B 18	B - Grass Agriculture	**22**	AT RO		Sustainable agriculture in wetland areas
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI RS	Continuous cover forests
78	C 22	C - Forestry	**22**	RO RS	BG CZ DE HR HU	Improve the structural diversity of the forest stands
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO RS	Side adapted greening of riparian zones
120	D 21	D - Water Management	**22**	DE SI		Subsidies for sustainable water management
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI RS	Land policy for flood retention and runoff
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI RS	Modified crop rotation
8	A 8	A - Arable Agriculture	**20**	SI RS	AT BG CZ HR	Conservation crop rotation – soil properties conservation
10	A 10	A - Arable Agriculture	**20**	SI	AT CZ HR HU	Mulching
19	A 19	A - Arable Agriculture	**20**	RO RS	AT BG DE HR	Crop selection
58	C 2	C - Forestry	**20**	DE	CZ HR HU RO	Soil conservation liming
59	C 3	C - Forestry	**20**	DE	BG HR HU SI RS	Soil-conserving timber harvest
74	C 18	C - Forestry	**20**	BG	CZ DE HU RO	Defined canopy cover percentage of forest stands
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI RS	Ecological structures within the landscape
154	H 6	H - TM Water Management	**20**	HU	DE HR RO SI	Restoration of wetlands areas
172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI RS	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
177	J 1	J - Land Consolidation	**20**	DE	AT CZ HU RO	Change of size and shape of individual parcels

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42	B 6	B - Grass Agriculture	**18**	AT	BG HU SI RS	Biological agriculture
60	C 4	C - Forestry	**18**	HR	BG DE HU	Establishing of field shrubs
91	C 35	C - Forestry	**18**	RO	AT BG CZ	Ecological reconstruction of resinous stands from outside the areal
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI RS	Artificial recruitment techniques
121	D 22	D - Water Management	**18**	DE	AT HR RO	Greening measures for ground water protection
149	H 1	H - TM Water Management	**18**	CZ	AT DE SI	Revitalization of streams
156	H 8	H - TM Water Management	**18**	HU	AT DE HR	Restoration of old and recent and establishment of new wetlands
171	I 13	I - TM Spatial Planning	**18**	SI	CZ DE HR	Rainwater is infiltrated directly at the parcel
178	J 2	J - Land Consolidation	**18**	CZ	AT HR SI RS	Design and implementation of “common structures”
183	J 7	J - Land Consolidation	**18**	SI RS	AT CZ HU	Multi-purpose development projects (e.g. water reservoirs,..)
195	L 2	L - GW Protection Zones	**18**	CZ	DE HU RO RS	Stimulation of land owners to implement soil conservation
40	B 4	B - Grass Agriculture	**16**	AT	CZ DE	Vineyards and orchards
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
185	K 2	K - SW Protection Zones	**16**	CZ	DE RO RS	Stimulation of land owners to implement soil conservation
26	A 26	A - Arable Agriculture	**13**	CZ	AT	Reduced tillage depth
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
158	H 10	H - TM Water Management	**13**	CZ RS	DE	Strict construction of retention structures accompanying important sealed areas
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
5	A 5	A - Arable Agriculture	**11**		AT BG CZ HU RO	Conservation tillage
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO RS	Green fertilizers
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI RS	Extensive agriculture
47	B 11	B - Grass Agriculture	**11**		AT DE HR HU SI	Training of pesticide users, distributers and advisors

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89	C 33	C - Forestry	**11**		AT CZ DE HR RO	Fitting integral watershed
118	D 19	D - Water Management	**11**		BG CZ DE HR RO	Revitalization of waste land/ brownfields
128	E 5	E - Spatial Planning	**11**		DE HR HU RO SI	Land use coordination in river catchments by inter-municipal cooperation
134	F 3	F - TM Agriculture	**11**		AT BG CZ DE SI	Sediment trapping reservoir
148	G 5	G - TM Forestry	**11**		AT BG DE HR SI RS	Rehabilitation and recultivation of damaged forest terrains
150	H 2	H - TM Water Management	**11**	BG		High roughness of floodplain
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI RS	Construction of retention volumes within the catchments
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI RS	Proper land use and spatial planning within the areas of interest
2	A 2	A - Arable Agriculture	**9**		BG CZ HR RO RS	Contour stripping (crop rotation)
3	A 3	A - Arable Agriculture	**9**		BG CZ DE RO	Contour stripping - grassing
7	A 7	A - Arable Agriculture	**9**		CZ DE HR RO	Conservation crop rotation – soil erosion conservation
16	A 16	A - Arable Agriculture	**9**		AT CZ DE HR	Winter crops on at least 20% of the total arable slope lands
24	A 24	A - Arable Agriculture	**9**		AT BG CZ HR	Across slope tillage
70	C 14	C - Forestry	**9**		AT BG HR HU	Use of livestock power for harvesting
111	D 12	D - Water Management	**9**		AT DE HU RO	Connection of old river streams to the main stream,
133	F 2	F - TM Agriculture	**9**		DE HR HU RO RS	Hedges
136	F 5	F - TM Agriculture	**9**		AT DE RO SI	Sediment control dams
139	F 8	F - TM Agriculture	**9**		AT DE HR SI	Terraces
141	F 10	F - TM Agriculture	**9**		CZ DE HR RO	Water retention strips (furrows)
144	G 1	G - TM Forestry	**9**		DE HR RO SI	Retention pools
151	H 3	H - TM Water Management	**9**		CZ HR HU SI RS	Retention spaces within the catchment
155	H 7	H - TM Water Management	**9**		AT CZ DE HU	Creek renaturation
167	I 9	I - TM Spatial Planning	**9**		BG CZ HU RO	Incorporating ecological elements into landscape matrix
182	J 6	J - Land Consolidation	**9**	RS	AT CZ HR SI	Readjustment of land for public projects (e.g. flood prevention, nature conservation)
18	A 18	A - Arable Agriculture	**7**		BG HR RO	The typology of agricultural crops
51	B 15	B - Grass Agriculture	**7**		BG DE HU	Reintroduction of forest trees and shrubs
56	B 20	B - Grass Agriculture	**7**		DE HU RO	Removal of old drainage systems in wet land areas
137	F 6	F - TM Agriculture	**7**		DE HR RO	Infiltrating ditches

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168	I 10	I - TM Spatial Planning	**7**	DE HR SI	Natural measures for water retention in urban zones
170	I 12	I - TM Spatial Planning	**7**	DE HR RO	Reducing the increase of sealed surfaces within settlement areas
11	A 11	A - Arable Agriculture	**4**	AT RO RS	Organic farming
17	A 17	A - Arable Agriculture	**4**	BG DE RS	Maintaining uncultivated arable land after harvesting, on at least 20% from the total arable land of the farm
20	A 20	A - Arable Agriculture	**4**	HR RO	The use of mixed crops
22	A 22	A - Arable Agriculture	**4**	BG HR	Cultivating a greater number of varieties
25	A 25	A - Arable Agriculture	**4**	AT CZ	Fixed retention ponds
52	B 16	B - Grass Agriculture	**4**	HR RO	Manual mowing in low intensive and vulnerable areas
138	F 7	F - TM Agriculture	**4**	RO SI	Infiltrating pools
140	F 9	F - TM Agriculture	**4**	CZ SI RS	Grassed waterways
161	I 3	I - TM Spatial Planning	**4**	DE HU	Keeping low percentage of sealed surfaces within urbanization
23	A 23	A - Arable Agriculture	**2**	HR	Grassed waterway
27	A 27	A - Arable Agriculture	**2**	HR	Combined seeding of cover crops and row crops
53	B 17	B - Grass Agriculture	**2**	RO	Application of agro-forestry practices
135	F 4	F - TM Agriculture	**2**	BG	Sediment trapping pool
147	G 4	G - TM Forestry	**2**	CZ	Maintaining of existing and building new infrastructure in the affected of erosion regions
163	I 5	I - TM Spatial Planning	**2**	DE	Incorporating of artificial wetlands into urbanization
169	I 11	I - TM Spatial Planning	**2**	DE	Maps indicating the degree of negative hydrological effects of surface sealing
6	A 6	A - Arable Agriculture	**-**		No tillage
12	A 12	A - Arable Agriculture	**-**		Mobile retention elements (dams made of straw, …)
15	A 15	A - Arable Agriculture	**-**		Precision agriculture
146	G 3	G - TM Forestry	**-**		Road removal

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6 APPENDIX 2 - frequency for land management segments

Every practice is listed in the following tables - from the most frequent to the least frequent in Danube countries – separated for each land management segment.

Table 6: BMP listed from the most frequent to the least frequent in Danube countries sorted by land management segments.

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU RS	Stubble burning strictly prohibited
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring
34	A 34	A - Arable Agriculture	**56**	AT CZ DE HR SI		Limitation of fertilizer and pesticide application on DWPZ
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI RS	BG CZ DE HU	Agricultural advisory services
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
35	A 35	A - Arable Agriculture	**36**	CZ DE SI	HR	Subsidies for farmers for limitations on DWPZ I
4	A 4	A - Arable Agriculture	**33**	DE SI RS	AT BG HR HU RO	Vegetated buffer zones along water bodies
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE RS	Contour cultivation
14	A 14	A - Arable Agriculture	**29**	DE SI RS	AT CZ HR	Fertilization with manure and compost – organic matter supply
8	A 8	A - Arable Agriculture	**20**	SI RS	AT BG CZ HR	Conservation crop rotation – soil properties conservation
10	A 10	A - Arable Agriculture	**20**	SI	AT CZ HR HU	Mulching
19	A 19	A - Arable Agriculture	**20**	RO RS	AT BG DE HR	Crop selection
26	A 26	A - Arable Agriculture	**13**	CZ	AT	Reduced tillage depth
5	A 5	A - Arable Agriculture	**11**		AT BG CZ HU RO	Conservation tillage
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO RS	Green fertilizers
2	A 2	A - Arable Agriculture	**9**		BG CZ HR RO RS	Contour stripping (crop rotation)
3	A 3	A - Arable Agriculture	**9**		BG CZ DE RO	Contour stripping - grassing
7	A 7	A - Arable Agriculture	**9**		CZ DE HR RO	Conservation crop rotation – soil erosion conservation

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16	A 16	A - Arable Agriculture	**9**		AT CZ DE HR	Winter crops on at least 20% of the total arable slope lands
24	A 24	A - Arable Agriculture	**9**		AT BG CZ HR	Across slope tillage
18	A 18	A - Arable Agriculture	**7**		BG HR RO	The typology of agricultural crops
11	A 11	A - Arable Agriculture	**4**		AT RO RS	Organic farming
17	A 17	A - Arable Agriculture	**4**		BG DE RS	Maintaining uncultivated arable land after harvesting, on at least 20% from the total arable land of the farm
20	A 20	A - Arable Agriculture	**4**		HR RO	The use of mixed crops
22	A 22	A - Arable Agriculture	**4**		BG HR	Cultivating a greater number of varieties
25	A 25	A - Arable Agriculture	**4**		AT CZ	Fixed retention ponds
23	A 23	A - Arable Agriculture	**2**		HR	Grassed waterway
27	A 27	A - Arable Agriculture	**2**		HR	Combined seeding of cover crops and row crops
6	A 6	A - Arable Agriculture	**-**			No tillage
12	A 12	A - Arable Agriculture	**-**			Mobile retention elements (dams made of straw, …)
15	A 15	A - Arable Agriculture	**-**			Precision agriculture
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI RS	Dry vegetation burning on permanent pastures is strictly prohibited
38	B 2	B - Grass Agriculture	**33**	DE SI RS	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI RS	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
37	B 1	B - Grass Agriculture	**31**	AT SI RS	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)
45	B 9	B - Grass Agriculture	**29**	BG DE RS	AT CZ SI	Proper density of cattle at the pastures
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI RS	Increasing the efficiency of irrigation systems
39	B 3	B - Grass Agriculture	**22**	SI RS	AT BG CZ DE HU	Vineyards and orchards
46	B 10	B - Grass Agriculture	**22**	BG RS	AT CZ HU RO SI	Low input systems in livestock production
54	B 18	B - Grass Agriculture	**22**	AT RO		Sustainable agriculture in wetland areas
42	B 6	B - Grass Agriculture	**18**	AT	BG HU SI RS	Biological agriculture
40	B 4	B - Grass Agriculture	**16**	AT	CZ DE	Vineyards and orchards
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI RS	Extensive agriculture

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47	B 11	B - Grass Agriculture	**11**		AT DE HR HU SI	Training of pesticide users, distributers and advisors
51	B 15	B - Grass Agriculture	**7**		BG DE HU	Reintroduction of forest trees and shrubs
56	B 20	B - Grass Agriculture	**7**		DE HU RO	Removal of old drainage systems in wet land areas
52	B 16	B - Grass Agriculture	**4**		HR RO	Manual mowing in low intensive and vulnerable areas
53	B 17	B - Grass Agriculture	**2**		RO	Application of agro-forestry practices
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
67	C 11	C - Forestry	**62**	AT BG HU RO SI RS	CZ DE HR	Policy and legislation initiatives
63	C 7	C - Forestry	**51**	BG DE RO SI RS	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI RS	AT HR HU	Special management regime for protective forest
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO RS	AT HR HU	Restrictions in order to use resources ecologically fragile areas
95	C 39	C - Forestry	**49**	BG DE RO SI RS	CZ HR	Small-scale regeneration techniques
68	C 12	C - Forestry	**42**	BG RO SI RS	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI RS	DE HR HU RO	Limitation of the percentage of timber extraction
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO RS	Afforestation of clear-cut areas
72	C 16	C - Forestry	**40**	DE RO SI RS	CZ HR HU	Avoidance of Clear-Cuts
71	C 15	C - Forestry	**38**	AT BG SI	DE HR	Maintaining of the register for torrential watersheds
86	C 30	C - Forestry	**38**	CZ DE RO	AT HU	Stop of chemical fertilizers and pesticides and herbicides, support of manual processing
84	C 28	C - Forestry	**36**	RO SI RS	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
82	C 26	C - Forestry	**33**	BG SI RS	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI RS	AT CZ HR HU RO	Selection cutting in forests
94	C 38	C - Forestry	**33**	HU RO RS	BG CZ DE HR HU	Improve the structural diversity of the forest stands
62	C 6	C - Forestry	**31**	HU SI RS	BG DE HR RO	Establishment of mixed forests
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO RS	Maintaining optimal structure, as compared hydrology, forest ecosystems
79	C 23	C - Forestry	**31**	BG RO RS	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
80	C 24	C - Forestry	**31**	DE SI RS	CZ HR HU RO	Foster old, huge and vital tree individuals
85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
61	C 5	C - Forestry	**29**	DE SI	BG HU RO RS	Avoiding open space

77	C 21	C - Forestry	**29**	HR SI RS	BG HU RO	Tree species diversity according to the natural forest community
65	C 9	C - Forestry	**27**	RO SI	DE HU RS	Identification and protection of virgin forests
73	C 17	C - Forestry	**27**	RO SI	BG DE RS	Establishment of a Continuous Cover Forest System (CCF)
76	C 20	C - Forestry	**24**	RO RS	BG CZ DE HR HU SI	Continuous regeneration dynamics
81	C 25	C - Forestry	**24**	SI RS	AT BG CZ DE HU RO	Adequate dead-wood content
96	C 40	C - Forestry	**24**	RO RS	AT BG CZ DE HR SI	Structural thinning operations
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI RS	Continuous cover forests
78	C 22	C - Forestry	**22**	RO RS	BG CZ DE HR HU	Improve the structural diversity of the forest stands
58	C 2	C - Forestry	**20**	DE	CZ HR HU RO	Soil conservation liming
59	C 3	C - Forestry	**20**	DE	BG HR HU SI RS	Soil-conserving timber harvest
74	C 18	C - Forestry	**20**	BG	CZ DE HU RO	Defined canopy cover percentage of forest stands
60	C 4	C - Forestry	**18**	HR	BG DE HU	Establishing of field shrubs
91	C 35	C - Forestry	**18**	RO	AT BG CZ	Ecological reconstruction of resinous stands from outside the areal
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI RS	Artificial recruitment techniques
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
89	C 33	C - Forestry	**11**		AT CZ DE HR RO	Fitting integral watershed
70	C 14	C - Forestry	**9**		AT BG HR HU	Use of livestock power for harvesting
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI RS	DE HR	Establishment of sanitary protection zones (DWPZ)
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI RS	Flood Risks Management Plans
115	D 16	D - Water Management	**53**	CZ DE RO SI RS	AT BG HR HU	Designation of protected ground water areas
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI RS	Hazard and flood risks maps
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control

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112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
102	D 3	D - Water Management	**29**	DE HU	AT CZ HR	Ex lege protected water related habitats
122	D 23	D - Water Management	**29**	AT SI	BG DE RO	Trainings, awareness raising activities
106	D 7	D - Water Management	**27**	DE HR	CZ SI	Economic measures addressing water scarcity and drought
119	D 20	D - Water Management	**27**	DE RO	CZ SI RS	Revitalisation of surface drains, slurry pits
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO RS	Side adapted greening of riparian zones
120	D 21	D - Water Management	**22**	DE SI		Subsidies for sustainable water management
121	D 22	D - Water Management	**18**	DE	AT HR RO	Greening measures for ground water protection
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
118	D 19	D - Water Management	**11**		BG CZ DE HR RO	Revitalization of waste land/ brownfields
111	D 12	D - Water Management	**9**		AT DE HU RO	Connection of old river streams to the main stream,
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU RS	Incorporation of water management plans into physical (spatial) planning
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
129	E 6	E - Spatial Planning	**51**	AT DE HR SI RS	BG HU RO	Land reservation for potential drinking water sources
127	E 4	E - Spatial Planning	**44**	CZ HR SI RS	AT BG DE HU RO	Local development concepts
126	E 3	E - Spatial Planning	**33**	CZ DE RS	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
130	E 7	E - Spatial Planning	**29**	DE SI	CZ HR RO	Definition of river corridor and riparian area (land parcels / cadastre)
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI RS	Ecological structures within the landscape
128	E 5	E - Spatial Planning	**11**		DE HR HU RO SI	Land use coordination in river catchments by inter-municipal cooperation
143	F 12	F - TM Agriculture	**42**	CZ HR SI RS	AT BG DE RO	Flood control canals, lateral canals and connecting canals
132	F 1	F - TM Agriculture	**27**	HR RO	CZ DE	Ditches
142	F 11	F - TM Agriculture	**27**	DE SI	HR RO RS	Retarding basins
134	F 3	F - TM Agriculture	**11**		AT BG CZ DE SI	Sediment trapping reservoir
133	F 2	F - TM Agriculture	**9**		DE HR HU RO RS	Hedges
136	F 5	F - TM Agriculture	**9**		AT DE RO SI	Sediment control dams

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139	F 8	F - TM Agriculture	**9**		AT DE HR SI	Terraces
141	F 10	F - TM Agriculture	**9**		CZ DE HR RO	Water retention strips (furrows)
137	F 6	F - TM Agriculture	**7**		DE HR RO	Infiltrating ditches
138	F 7	F - TM Agriculture	**4**		RO SI	Infiltrating pools
140	F 9	F - TM Agriculture	**4**		CZ SI RS	Grassed waterways
135	F 4	F - TM Agriculture	**2**		BG	Sediment trapping pool
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI RS	Road runoff
148	G 5	G - TM Forestry	**11**		AT BG DE HR SI RS	Rehabilitation and recultivation of damaged forest terrains
144	G 1	G - TM Forestry	**9**		DE HR RO SI	Retention pools
147	G 4	G - TM Forestry	**2**		CZ	Maintaining of existing and building new infrastructure in the affected of erosion regions
146	G 3	G - TM Forestry	**-**			Road removal
152	H 4	H - TM Water Management	**51**	AT CZ HU SI RS	BG DE HR	Flood control dams and levees
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
154	H 6	H - TM Water Management	**20**	HU	DE HR RO SI	Restoration of wetlands areas
149	H 1	H - TM Water Management	**18**	CZ	AT DE SI	Revitalization of streams
156	H 8	H - TM Water Management	**18**	HU	AT DE HR	Restoration of old and recent and establishment of new wetlands
158	H 10	H - TM Water Management	**13**	CZ RS	DE	Strict construction of retention structures accompanying important sealed areas
150	H 2	H - TM Water Management	**11**	BG		High roughness of floodplain
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI RS	Construction of retention volumes within the catchments
151	H 3	H - TM Water Management	**9**		CZ HR HU SI RS	Retention spaces within the catchment
155	H 7	H - TM Water Management	**9**		AT CZ DE HU	Creek renaturation
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO RS	Zones with high potential flood-risks have closure for constructing activities
159	I 1	I - TM Spatial Planning	**42**	BG DE SI RS	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO RS	Strict incorporation of complete waste water treatment plant into each settlement
160	I 2	I - TM Spatial Planning	**40**	DE RO SI RS	BG CZ HR	Conserve water retention and run off structures in local land use planning
166	I 8	I - TM Spatial Planning	**31**	DE SI RS	AT CZ HR HU	Proclamation of particular land particle as a water resource
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI RS	Reservation zones
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel

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174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI RS	Land policy for flood retention and runoff
172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI RS	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
171	I 13	I - TM Spatial Planning	**18**	SI	CZ DE HR	Rainwater is infiltrated directly at the parcel
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
167	I 9	I - TM Spatial Planning	**9**		BG CZ HU RO	Incorporating ecological elements into landscape matrix
168	I 10	I - TM Spatial Planning	**7**		DE HR SI	Natural measures for water retention in urban zones
170	I 12	I - TM Spatial Planning	**7**		DE HR RO	Reducing the increase of sealed surfaces within settlement areas
161	I 3	I - TM Spatial Planning	**4**		DE HU	Keeping low percentage of sealed surfaces within urbanization
163	I 5	I - TM Spatial Planning	**2**		DE	Incorporating of artificial wetlands into urbanization
169	I 11	I - TM Spatial Planning	**2**		DE	Maps indicating the degree of negative hydrological effects of surface sealing
180	J 4	J - Land Consolidation	**27**	CZ DE	HR SI RS	Permanent grassing
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI RS	Permanent afforestation
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI RS	Modified crop rotation
177	J 1	J - Land Consolidation	**20**	DE	AT CZ HU RO	Change of size and shape of individual parcels
178	J 2	J - Land Consolidation	**18**	CZ	AT HR SI RS	Design and implementation of “common structures”
183	J 7	J - Land Consolidation	**18**	SI RS	AT CZ HU	Multi-purpose development projects (e.g. water reservoirs,..)
182	J 6	J - Land Consolidation	**9**	RS	AT CZ HR SI	Readjustment of land for public projects (e.g. flood prevention, nature conservation)
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Defining areas for the protection of aquatic species
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI RS	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR RS	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI RS	BG HR HU	Water protective zones for drinking water supply
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI RS	Monitoring of production, import and use of chemical products

189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI RS	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO RS	Stimulation of farmers to implement soil conservation
185	K 2	K - SW Protection Zones	**16**	CZ	DE RO RS	Stimulation of land owners to implement soil conservation
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI RS	Proper land use and spatial planning within the areas of interest
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI RS	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI RS	HU RO	Prevention of direct wastewater discharge into groundwater
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI RS	Prohibition of the use of chemical fertilizers in the protection zones
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones
202	L 9	L - GW Protection Zones	**47**	AT CZ RO SI	DE	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI RS	Prohibition of the use of natural and chemical fertilizers in the protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO RS	Stimulation of farmers to implement soil conservation
195	L 2	L - GW Protection Zones	**18**	CZ	DE HU RO RS	Stimulation of land owners to implement soil conservation

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7 APPENDIX 3 – frequent practices in CAMARO-D countries

In the following tables – the practices approved as frequently used in every single country are presented. The practices are listed by individual land management segments, always from the most frequent in the whole CAMARO-D region to the least frequent. For the frequency comparison between individual segments the frequency index over CAMARO-D region is included.

In cases of no practices assigned as "high frequency" the corresponding segments are missing in tables.

In High field, the countries with high frequency of the same practice are listed.

In Normal field, the countries with normal frequency of the same practice are listed.

7.1 Austria

Table 7: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU RS	Stubble burning strictly prohibited
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring
34	A 34	A - Arable Agriculture	**56**	AT CZ DE HR SI		Limitation of fertilizer and pesticide application on DWPZ
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI RS	BG CZ DE HU	Agricultural advisory services
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI RS	Dry vegetation burning on permanent pastures is strictly prohibited
37	B 1	B - Grass Agriculture	**31**	AT SI RS	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)
54	B 18	B - Grass Agriculture	**22**	AT RO		Sustainable agriculture in wetland areas
42	B 6	B - Grass Agriculture	**18**	AT	BG HU SI RS	Biological agriculture

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40	B 4	B - Grass Agriculture	**16**	AT	CZ DE	Vineyards and orchards
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
67	C 11	C - Forestry	**62**	AT BG HU RO SI RS	CZ DE HR	Policy and legislation initiatives
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO RS	Afforestation of clear-cut areas
71	C 15	C - Forestry	**38**	AT BG SI	DE HR	Maintaining of the register for torrential watersheds
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI RS	DE HR	Establishment of sanitary protection zones (DWPZ)
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI RS	Flood Risks Management Plans
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI RS	Hazard and flood risks maps
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
122	D 23	D - Water Management	**29**	AT SI	BG DE RO	Trainings, awareness raising activities
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU RS	Incorporation of water management plans into physical (spatial) planning
129	E 6	E - Spatial Planning	**51**	AT DE HR SI RS	BG HU RO	Land reservation for potential drinking water sources
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI RS	Road runoff
152	H 4	H - TM Water Management	**51**	AT CZ HU SI RS	BG DE HR	Flood control dams and levees
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO RS	Strict incorporation of complete waste water treatment plant into each settlement
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Defining areas for the protection of aquatic species
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR RS	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI RS	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO RS	Stimulation of farmers to implement soil conservation
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI RS	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI RS	HU RO	Prevention of direct wastewater discharge into groundwater
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI RS	Prohibition of the use of chemical fertilizers in the protection zones

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201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones
202	L 9	L - GW Protection Zones	**47**	AT CZ RO SI	DE	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI RS	Prohibition of the use of natural and chemical fertilizers in the protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO RS	Stimulation of farmers to implement soil conservation

7.2 Bulgaria

Table 8: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU	Stubble burning strictly prohibited
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI	Dry vegetation burning on permanent pastures is strictly prohibited
45	B 9	B - Grass Agriculture	**29**	BG DE	AT CZ SI	Proper density of cattle at the pastures
46	B 10	B - Grass Agriculture	**22**	BG	AT CZ HU RO SI	Low input systems in livestock production
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
67	C 11	C - Forestry	**62**	AT BG HU RO SI	CZ DE HR	Policy and legislation initiatives
63	C 7	C - Forestry	**51**	BG DE RO SI	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI	AT HR HU	Special management regime for protective forest
93	C 37	C - Forestry	**51**	BG CZ DE RO	AT HR HU	Restrictions in order to use resources ecologically fragile areas
95	C 39	C - Forestry	**49**	BG DE RO SI	CZ HR	Small-scale regeneration techniques
68	C 12	C - Forestry	**42**	BG RO SI	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI	DE HR HU RO	Limitation of the percentage of timber extraction
71	C 15	C - Forestry	**38**	AT BG SI	DE HR	Maintaining of the register for torrential watersheds
82	C 26	C - Forestry	**33**	BG SI	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI	AT CZ HR HU RO	Selection cutting in forests

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64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO	Maintaining optimal structure, as compared hydrology, forest ecosystems
79	C 23	C - Forestry	**31**	BG RO	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
74	C 18	C - Forestry	**20**	BG	CZ DE HU RO	Defined canopy cover percentage of forest stands
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI	DE HR	Establishment of sanitary protection zones (DWPZ)
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI	Flood Risks Management Plans
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI	Hazard and flood risks maps
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
150	H 2	H - TM Water Management	**11**	BG		High roughness of floodplain
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
159	I 1	I - TM Spatial Planning	**42**	BG DE SI	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI	Reservation zones
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Defining areas for the protection of aquatic species
189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI	HU RO	Prevention of direct wastewater discharge into groundwater
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI	Prohibition of the use of chemical fertilizers in the protection zones
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI	Prohibition of the use of natural and chemical fertilizers in the protection zones

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7.3 Croatia

Table 9: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
34	A 34	A - Arable Agriculture	**56**	AT CZ DE HR SI		Limitation of fertilizer and pesticide application on DWPZ
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI	BG CZ DE HU	Agricultural advisory services
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE	Contour cultivation
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
77	C 21	C - Forestry	**29**	HR SI	BG HU RO	Tree species diversity according to the natural forest community
60	C 4	C - Forestry	**18**	HR	BG DE HU	Establishing of field shrubs
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
106	D 7	D - Water Management	**27**	DE HR	CZ SI	Economic measures addressing water scarcity and drought
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU	Incorporation of water management plans into physical (spatial) planning
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
129	E 6	E - Spatial Planning	**51**	AT DE HR SI	BG HU RO	Land reservation for potential drinking water sources
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
143	F 12	F - TM Agriculture	**42**	CZ HR SI	AT BG DE RO	Flood control canals, lateral canals and connecting canals
132	F 1	F - TM Agriculture	**27**	HR RO	CZ DE	Ditches
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI	Road runoff

7.4 Czechia

Table 10: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU	Stubble burning strictly prohibited
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring

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34	A 34	A - Arable Agriculture	**56**	AT CZ DE HR SI		Limitation of fertilizer and pesticide application on DWPZ
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
35	A 35	A - Arable Agriculture	**36**	CZ DE SI	HR	Subsidies for farmers for limitations on DWPZ I
26	A 26	A - Arable Agriculture	**13**	CZ	AT	Reduced tillage depth
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI	Dry vegetation burning on permanent pastures is strictly prohibited
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO	AT HR HU	Restrictions in order to use resources ecologically fragile areas
75	C 19	C - Forestry	**42**	BG CZ SI	DE HR HU RO	Limitation of the percentage of timber extraction
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO	Afforestation of clear-cut areas
86	C 30	C - Forestry	**38**	CZ DE RO	AT HU	Stop of chemical fertilizers and pesticides and herbicides, support of manual processing
90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI	DE HR	Establishment of sanitary protection zones (DWPZ)
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
126	E 3	E - Spatial Planning	**33**	CZ DE	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
143	F 12	F - TM Agriculture	**42**	CZ HR SI	AT BG DE RO	Flood control canals, lateral canals and connecting canals
152	H 4	H - TM Water Management	**51**	AT CZ HU SI	BG DE HR	Flood control dams and levees
149	H 1	H - TM Water Management	**18**	CZ	AT DE SI	Revitalization of streams
158	H 10	H - TM Water Management	**13**	CZ	DE	Strict construction of retention structures accompanying important sealed areas
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO	Strict incorporation of complete waste water treatment plant into each settlement
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI	Reservation zones
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI	Land policy for flood retention and runoff

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180	J 4	J - Land Consolidation	**27**	CZ DE	HR SI	Permanent grassing
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI	Modified crop rotation
178	J 2	J - Land Consolidation	**18**	CZ	AT HR SI	Design and implementation of “common structures”
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Defining areas for the protection of aquatic species
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI	BG HR HU	Water protective zones for drinking water supply
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO	Stimulation of farmers to implement soil conservation
185	K 2	K - SW Protection Zones	**16**	CZ	DE RO	Stimulation of land owners to implement soil conservation
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI	HU RO	Prevention of direct wastewater discharge into groundwater
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI	Prohibition of the use of chemical fertilizers in the protection zones
202	L 9	L - GW Protection Zones	**47**	AT CZ RO SI	DE	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI	Prohibition of the use of natural and chemical fertilizers in the protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO	Stimulation of farmers to implement soil conservation
195	L 2	L - GW Protection Zones	**18**	CZ	DE HU RO	Stimulation of land owners to implement soil conservation

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7.5 Germany

Table 11: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU	Stubble burning strictly prohibited
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring
34	A 34	A - Arable Agriculture	**56**	AT CZ DE HR SI		Limitation of fertilizer and pesticide application on DWPZ
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
35	A 35	A - Arable Agriculture	**36**	CZ DE SI	HR	Subsidies for farmers for limitations on DWPZ I
4	A 4	A - Arable Agriculture	**33**	DE SI	AT BG HR HU RO	Vegetated buffer zones along water bodies
14	A 14	A - Arable Agriculture	**29**	DE SI	AT CZ HR	Fertilization with manure and compost – organic matter supply
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
38	B 2	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
45	B 9	B - Grass Agriculture	**29**	BG DE	AT CZ SI	Proper density of cattle at the pastures
63	C 7	C - Forestry	**51**	BG DE RO SI	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI	AT HR HU	Special management regime for protective forest
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO	AT HR HU	Restrictions in order to use resources ecologically fragile areas
95	C 39	C - Forestry	**49**	BG DE RO SI	CZ HR	Small-scale regeneration techniques
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO	Afforestation of clear-cut areas
72	C 16	C - Forestry	**40**	DE RO SI	CZ HR HU	Avoidance of Clear-Cuts
86	C 30	C - Forestry	**38**	CZ DE RO	AT HU	Stop of chemical fertilizers and pesticides and herbicides, support of manual processing
80	C 24	C - Forestry	**31**	DE SI	CZ HR HU RO	Foster old, huge and vital tree individuals

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85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
61	C 5	C - Forestry	**29**	DE SI	BG HU RO	Avoiding open space
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
58	C 2	C - Forestry	**20**	DE	CZ HR HU RO	Soil conservation liming
59	C 3	C - Forestry	**20**	DE	BG HR HU SI	Soil-conserving timber harvest
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI	Flood Risks Management Plans
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI	Hazard and flood risks maps
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
102	D 3	D - Water Management	**29**	DE HU	AT CZ HR	Ex lege protected water related habitats
106	D 7	D - Water Management	**27**	DE HR	CZ SI	Economic measures addressing water scarcity and drought
119	D 20	D - Water Management	**27**	DE RO	CZ SI	Revitalisation of surface drains, slurry pits
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO	Side adapted greening of riparian zones
120	D 21	D - Water Management	**22**	DE SI		Subsidies for sustainable water management
121	D 22	D - Water Management	**18**	DE	AT HR RO	Greening measures for ground water protection
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU	Incorporation of water management plans into physical (spatial) planning
129	E 6	E - Spatial Planning	**51**	AT DE HR SI	BG HU RO	Land reservation for potential drinking water sources
126	E 3	E - Spatial Planning	**33**	CZ DE	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
130	E 7	E - Spatial Planning	**29**	DE SI	CZ HR RO	Definition of river corridor and riparian area (land parcels / cadastre)
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI	Ecological structures within the landscape
142	F 11	F - TM Agriculture	**27**	DE SI	HR RO	Retarding basins
159	I 1	I - TM Spatial Planning	**42**	BG DE SI	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures

160	I 2	I - TM Spatial Planning	**40**	DE RO SI	BG CZ HR	Conserve water retention and run off structures in local land use planning
166	I 8	I - TM Spatial Planning	**31**	DE SI	AT CZ HR HU	Proclamation of particular land particle as a water resource
172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
180	J 4	J - Land Consolidation	**27**	CZ DE	HR SI	Permanent grassing
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI	Permanent afforestation
177	J 1	J - Land Consolidation	**20**	DE	AT CZ HU RO	Change of size and shape of individual parcels
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Defining areas for the protection of aquatic species
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI	BG HR HU	Water protective zones for drinking water supply
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products
189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI	HU RO	Prevention of direct wastewater discharge into groundwater
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI	Prohibition of the use of chemical fertilizers in the protection zones
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones

7.6 Hungary

Table 12: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures

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28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU	Stubble burning strictly prohibited
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI	BG CZ DE HU	Agricultural advisory services
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
67	C 11	C - Forestry	**62**	AT BG HU RO SI	CZ DE HR	Policy and legislation initiatives
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
94	C 38	C - Forestry	**33**	HU RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
62	C 6	C - Forestry	**31**	HU SI	BG DE HR RO	Establishment of mixed forests
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI	DE HR	Establishment of sanitary protection zones (DWPZ)
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
102	D 3	D - Water Management	**29**	DE HU	AT CZ HR	Ex lege protected water related habitats
152	H 4	H - TM Water Management	**51**	AT CZ HU SI	BG DE HR	Flood control dams and levees
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
154	H 6	H - TM Water Management	**20**	HU	DE HR RO SI	Restoration of wetlands areas
156	H 8	H - TM Water Management	**18**	HU	AT DE HR	Restoration of old and recent and establishment of new wetlands
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of surface waters

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190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Defining areas for the protection of aquatic species
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of groundwater

7.7 Romania

Table 13: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
19	A 19	A - Arable Agriculture	**20**	RO	AT BG DE HR	Crop selection
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
54	B 18	B - Grass Agriculture	**22**	AT RO		Sustainable agriculture in wetland areas
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
67	C 11	C - Forestry	**62**	AT BG HU RO SI	CZ DE HR	Policy and legislation initiatives
63	C 7	C - Forestry	**51**	BG DE RO SI	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI	AT HR HU	Special management regime for protective forest
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO	AT HR HU	Restrictions in order to use resources ecologically fragile areas
95	C 39	C - Forestry	**49**	BG DE RO SI	CZ HR	Small-scale regeneration techniques
68	C 12	C - Forestry	**42**	BG RO SI	CZ DE HR HU	Stabilization of riverside lands
72	C 16	C - Forestry	**40**	DE RO SI	CZ HR HU	Avoidance of Clear-Cuts
86	C 30	C - Forestry	**38**	CZ DE RO	AT HU	Stop of chemical fertilizers and pesticides and herbicides, support of manual processing
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems

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94	C 38	C - Forestry	**33**	HU RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
79	C 23	C - Forestry	**31**	BG RO	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
65	C 9	C - Forestry	**27**	RO SI	DE HU	Identification and protection of virgin forests
73	C 17	C - Forestry	**27**	RO SI	BG DE	Establishment of a Continuous Cover Forest System (CCF)
76	C 20	C - Forestry	**24**	RO	BG CZ DE HR HU SI	Continuous regeneration dynamics
96	C 40	C - Forestry	**24**	RO	AT BG CZ DE HR SI	Structural thinning operations
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI	Continuous cover forests
78	C 22	C - Forestry	**22**	RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
91	C 35	C - Forestry	**18**	RO	AT BG CZ	Ecological reconstruction of resinous stands from outside the areal
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI	DE HR	Establishment of sanitary protection zones (DWPZ)
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI	Flood Risks Management Plans
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI	Hazard and flood risks maps
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
119	D 20	D - Water Management	**27**	DE RO	CZ SI	Revitalisation of surface drains, slurry pits
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU	Incorporation of water management plans into physical (spatial) planning
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
132	F 1	F - TM Agriculture	**27**	HR RO	CZ DE	Ditches
160	I 2	I - TM Spatial Planning	**40**	DE RO SI	BG CZ HR	Conserve water retention and run off structures in local land use planning
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Defining areas for the protection of aquatic species
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI	BG HR HU	Water protective zones for drinking water supply

197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of groundwater
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones
202	L 9	L - GW Protection Zones	**47**	AT CZ RO SI	DE	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots

7.8 Serbia

Table 14: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI RS	BG CZ DE HU	Agricultural advisory services
4	A 4	A - Arable Agriculture	**33**	DE SI RS	AT BG HR HU RO	Vegetated buffer zones along water bodies
14	A 14	A - Arable Agriculture	**29**	DE SI RS	AT CZ HR	Fertilization with manure and compost – organic matter supply
8	A 8	A - Arable Agriculture	**20**	SI RS	AT BG CZ HR	Conservation crop rotation – soil properties conservation
19	A 19	A - Arable Agriculture	**20**	RO RS	AT BG DE HR	Crop selection
38	B 2	B - Grass Agriculture	**33**	DE SI RS	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI RS	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
37	B 1	B - Grass Agriculture	**31**	AT SI RS	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)
45	B 9	B - Grass Agriculture	**29**	BG DE RS	AT CZ SI	Proper density of cattle at the pastures
39	B 3	B - Grass Agriculture	**22**	SI RS	AT BG CZ DE HU	Vineyards and orchards
46	B 10	B - Grass Agriculture	**22**	BG RS	AT CZ HU RO SI	Low input systems in livestock production
67	C 11	C - Forestry	**62**	AT BG HU RO SI RS	CZ DE HR	Policy and legislation initiatives
63	C 7	C - Forestry	**51**	BG DE RO SI RS	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI RS	AT HR HU	Special management regime for protective forest
93	C 37	C - Forestry	**51**	BG CZ DE RO RS	AT HR HU	Restrictions in order to use resources ecologically fragile areas
95	C 39	C - Forestry	**49**	BG DE RO SI RS	CZ HR	Small-scale regeneration techniques
68	C 12	C - Forestry	**42**	BG RO SI RS	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI RS	DE HR HU RO	Limitation of the percentage of timber extraction
72	C 16	C - Forestry	**40**	DE RO SI RS	CZ HR HU	Avoidance of Clear-Cuts

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84	C 28	C - Forestry	**36**	RO SI RS	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
82	C 26	C - Forestry	**33**	BG SI RS	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI RS	AT CZ HR HU RO	Selection cutting in forests
94	C 38	C - Forestry	**33**	HU RO RS	BG CZ DE HR HU	Improve the structural diversity of the forest stands
62	C 6	C - Forestry	**31**	HU SI RS	BG DE HR RO	Establishment of mixed forests
79	C 23	C - Forestry	**31**	BG RO RS	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
80	C 24	C - Forestry	**31**	DE SI RS	CZ HR HU RO	Foster old, huge and vital tree individuals
77	C 21	C - Forestry	**29**	HR SI RS	BG HU RO	Tree species diversity according to the natural forest community
76	C 20	C - Forestry	**24**	RO RS	BG CZ DE HR HU SI	Continuous regeneration dynamics
81	C 25	C - Forestry	**24**	SI RS	AT BG CZ DE HU RO	Adequate dead-wood content
96	C 40	C - Forestry	**24**	RO RS	AT BG CZ DE HR SI	Structural thinning operations
78	C 22	C - Forestry	**22**	RO RS	BG CZ DE HR HU	Improve the structural diversity of the forest stands
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI RS	DE HR	Establishment of sanitary protection zones (DWPZ)
115	D 16	D - Water Management	**53**	CZ DE RO SI RS	AT BG HR HU	Designation of protected ground water areas
129	E 6	E - Spatial Planning	**51**	AT DE HR SI RS	BG HU RO	Land reservation for potential drinking water sources
127	E 4	E - Spatial Planning	**44**	CZ HR SI RS	AT BG DE HU RO	Local development concepts
126	E 3	E - Spatial Planning	**33**	CZ DE RS	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
143	F 12	F - TM Agriculture	**42**	CZ HR SI RS	AT BG DE RO	Flood control canals, lateral canals and connecting canals
152	H 4	H - TM Water Management	**51**	AT CZ HU SI RS	BG DE HR	Flood control dams and levees
158	H 10	H - TM Water Management	**13**	CZ RS	DE	Strict construction of retention structures accompanying important sealed areas
159	I 1	I - TM Spatial Planning	**42**	BG DE SI RS	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
160	I 2	I - TM Spatial Planning	**40**	DE RO SI RS	BG CZ HR	Conserve water retention and run off structures in local land use planning
166	I 8	I - TM Spatial Planning	**31**	DE SI RS	AT CZ HR HU	Proclamation of particular land particle as a water resource
183	J 7	J - Land Consolidation	**18**	SI RS	AT CZ HU	Multi-purpose development projects (e.g. water reservoirs,..)
182	J 6	J - Land Consolidation	**9**	RS	AT CZ HR SI	Readjustment of land for public projects (e.g. flood prevention, nature conservation)
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Defining areas for the protection of aquatic species

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191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI RS	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI RS	BG HR HU	Water protective zones for drinking water supply
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI RS	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI RS	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI RS	HU RO	Prevention of direct wastewater discharge into groundwater

7.9 Slovenia

Table 15: High frequency BMPs listed from the most frequent to the least frequent in Danube countries – separately for each land management segment.

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring
34	A 34	A - Arable Agriculture	**56**	AT CZ DE HR SI		Limitation of fertilizer and pesticide application on DWPZ
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI	BG CZ DE HU	Agricultural advisory services
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
35	A 35	A - Arable Agriculture	**36**	CZ DE SI	HR	Subsidies for farmers for limitations on DWPZ I
4	A 4	A - Arable Agriculture	**33**	DE SI	AT BG HR HU RO	Vegetated buffer zones along water bodies
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE	Contour cultivation
14	A 14	A - Arable Agriculture	**29**	DE SI	AT CZ HR	Fertilization with manure and compost – organic matter supply
8	A 8	A - Arable Agriculture	**20**	SI	AT BG CZ HR	Conservation crop rotation – soil properties conservation
10	A 10	A - Arable Agriculture	**20**	SI	AT CZ HR HU	Mulching
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
38	B 2	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
37	B 1	B - Grass Agriculture	**31**	AT SI	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)

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39	B 3	B - Grass Agriculture	**22**	SI	AT BG CZ DE HU	Vineyards and orchards
67	C 11	C - Forestry	**62**	AT BG HU RO SI	CZ DE HR	Policy and legislation initiatives
63	C 7	C - Forestry	**51**	BG DE RO SI	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI	AT HR HU	Special management regime for protective forest
95	C 39	C - Forestry	**49**	BG DE RO SI	CZ HR	Small-scale regeneration techniques
68	C 12	C - Forestry	**42**	BG RO SI	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI	DE HR HU RO	Limitation of the percentage of timber extraction
72	C 16	C - Forestry	**40**	DE RO SI	CZ HR HU	Avoidance of Clear-Cuts
71	C 15	C - Forestry	**38**	AT BG SI	DE HR	Maintaining of the register for torrential watersheds
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
82	C 26	C - Forestry	**33**	BG SI	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI	AT CZ HR HU RO	Selection cutting in forests
62	C 6	C - Forestry	**31**	HU SI	BG DE HR RO	Establishment of mixed forests
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO	Maintaining optimal structure, as compared hydrology, forest ecosystems
80	C 24	C - Forestry	**31**	DE SI	CZ HR HU RO	Foster old, huge and vital tree individuals
85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
61	C 5	C - Forestry	**29**	DE SI	BG HU RO	Avoiding open space
77	C 21	C - Forestry	**29**	HR SI	BG HU RO	Tree species diversity according to the natural forest community
65	C 9	C - Forestry	**27**	RO SI	DE HU	Identification and protection of virgin forests
73	C 17	C - Forestry	**27**	RO SI	BG DE	Establishment of a Continuous Cover Forest System (CCF)
81	C 25	C - Forestry	**24**	SI	AT BG CZ DE HU RO	Adequate dead-wood content
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI	DE HR	Establishment of sanitary protection zones (DWPZ)
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control

112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
122	D 23	D - Water Management	**29**	AT SI	BG DE RO	Trainings, awareness raising activities
120	D 21	D - Water Management	**22**	DE SI		Subsidies for sustainable water management
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU	Incorporation of water management plans into physical (spatial) planning
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
129	E 6	E - Spatial Planning	**51**	AT DE HR SI	BG HU RO	Land reservation for potential drinking water sources
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
130	E 7	E - Spatial Planning	**29**	DE SI	CZ HR RO	Definition of river corridor and riparian area (land parcels / cadastre)
143	F 12	F - TM Agriculture	**42**	CZ HR SI	AT BG DE RO	Flood control canals, lateral canals and connecting canals
142	F 11	F - TM Agriculture	**27**	DE SI	HR RO	Retarding basins
152	H 4	H - TM Water Management	**51**	AT CZ HU SI	BG DE HR	Flood control dams and levees
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
159	I 1	I - TM Spatial Planning	**42**	BG DE SI	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO	Strict incorporation of complete waste water treatment plant into each settlement
160	I 2	I - TM Spatial Planning	**40**	DE RO SI	BG CZ HR	Conserve water retention and run off structures in local land use planning
166	I 8	I - TM Spatial Planning	**31**	DE SI	AT CZ HR HU	Proclamation of particular land particle as a water resource
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel
171	I 13	I - TM Spatial Planning	**18**	SI	CZ DE HR	Rainwater is infiltrated directly at the parcel
183	J 7	J - Land Consolidation	**18**	SI	AT CZ HU	Multi-purpose development projects (e.g. water reservoirs,..)
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Defining areas for the protection of aquatic species
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots

192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI	BG HR HU	Water protective zones for drinking water supply
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI	HU RO	Prevention of direct wastewater discharge into groundwater
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones
202	L 9	L - GW Protection Zones	**47**	AT CZ RO SI	DE	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots

8 APPENDIX 4 – normal practices in CAMARO-D countries

In the following tables – the practices approved as normally used in every single country are presented. The practices are listed by individual land management segments, always from the most frequent in the whole CAMARO-D region to the least frequent. For the frequency comparison between individual segments the frequency index over CAMARO-D region is included.

In cases of no practices assigned as "normal frequency" the corresponding segments are missing in tables.

9 In High field, the countries with high frequency of the same practice are listed.

10 In Normal field, the countries with normal frequency of the same practice are listed.

10.1 Austria

Table 16: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
4	A 4	A - Arable Agriculture	**33**	DE SI	AT BG HR HU RO	Vegetated buffer zones along water bodies
14	A 14	A - Arable Agriculture	**29**	DE SI	AT CZ HR	Fertilization with manure and compost – organic matter supply

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8	A 8	A - Arable Agriculture	**20**	SI	AT BG CZ HR	Conservation crop rotation – soil properties conservation
10	A 10	A - Arable Agriculture	**20**	SI	AT CZ HR HU	Mulching
19	A 19	A - Arable Agriculture	**20**	RO	AT BG DE HR	Crop selection
26	A 26	A - Arable Agriculture	**13**	CZ	AT	Reduced tillage depth
5	A 5	A - Arable Agriculture	**11**		AT BG CZ HU RO	Conservation tillage
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO	Green fertilizers
16	A 16	A - Arable Agriculture	**9**		AT CZ DE HR	Winter crops on at least 20% of the total arable slope lands
24	A 24	A - Arable Agriculture	**9**		AT BG CZ HR	Across slope tillage
11	A 11	A - Arable Agriculture	**4**		AT RO	Organic farming
25	A 25	A - Arable Agriculture	**4**		AT CZ	Fixed retention ponds
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
38	B 2	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
45	B 9	B - Grass Agriculture	**29**	BG DE	AT CZ SI	Proper density of cattle at the pastures
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
39	B 3	B - Grass Agriculture	**22**	SI	AT BG CZ DE HU	Vineyards and orchards
46	B 10	B - Grass Agriculture	**22**	BG	AT CZ HU RO SI	Low input systems in livestock production
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI	Extensive agriculture
47	B 11	B - Grass Agriculture	**11**		AT DE HR HU SI	Training of pesticide users, distributers and advisors
63	C 7	C - Forestry	**51**	BG DE RO SI	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI	AT HR HU	Special management regime for protective forest
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO	AT HR HU	Restrictions in order to use resources ecologically fragile areas
86	C 30	C - Forestry	**38**	CZ DE RO	AT HU	Stop of chemical fertilizers and pesticides and herbicides, support of manual processing
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
82	C 26	C - Forestry	**33**	BG SI	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI	AT CZ HR HU RO	Selection cutting in forests

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90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
81	C 25	C - Forestry	**24**	SI	AT BG CZ DE HU RO	Adequate dead-wood content
96	C 40	C - Forestry	**24**	RO	AT BG CZ DE HR SI	Structural thinning operations
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
91	C 35	C - Forestry	**18**	RO	AT BG CZ	Ecological reconstruction of resinous stands from outside the areal
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
89	C 33	C - Forestry	**11**		AT CZ DE HR RO	Fitting integral watershed
70	C 14	C - Forestry	**9**		AT BG HR HU	Use of livestock power for harvesting
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control
112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
102	D 3	D - Water Management	**29**	DE HU	AT CZ HR	Ex lege protected water related habitats
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO	Side adapted greening of riparian zones
121	D 22	D - Water Management	**18**	DE	AT HR RO	Greening measures for ground water protection
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
111	D 12	D - Water Management	**9**		AT DE HU RO	Connection of old river streams to the main stream,
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
126	E 3	E - Spatial Planning	**33**	CZ DE	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
143	F 12	F - TM Agriculture	**42**	CZ HR SI	AT BG DE RO	Flood control canals, lateral canals and connecting canals
134	F 3	F - TM Agriculture	**11**		AT BG CZ DE SI	Sediment trapping reservoir
136	F 5	F - TM Agriculture	**9**		AT DE RO SI	Sediment control dams

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139	F 8	F - TM Agriculture	**9**		AT DE HR SI	Terraces
148	G 5	G - TM Forestry	**11**		AT BG DE HR SI	Rehabilitation and recultivation of damaged forest terrains
149	H 1	H - TM Water Management	**18**	CZ	AT DE SI	Revitalization of streams
156	H 8	H - TM Water Management	**18**	HU	AT DE HR	Restoration of old and recent and establishment of new wetlands
155	H 7	H - TM Water Management	**9**		AT CZ DE HU	Creek renaturation
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
166	I 8	I - TM Spatial Planning	**31**	DE SI	AT CZ HR HU	Proclamation of particular land particle as a water resource
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI	Permanent afforestation
177	J 1	J - Land Consolidation	**20**	DE	AT CZ HU RO	Change of size and shape of individual parcels
178	J 2	J - Land Consolidation	**18**	CZ	AT HR SI	Design and implementation of “common structures”
183	J 7	J - Land Consolidation	**18**	SI	AT CZ HU	Multi-purpose development projects (e.g. water reservoirs,..)
182	J 6	J - Land Consolidation	**9**		AT CZ HR SI	Readjustment of land for public projects (e.g. flood prevention, nature conservation)
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products

10.2 Bulgaria

Table 17: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
30	A 30	A - Arable Agriculture	**58**	AT CZ DE HU SI	BG	Fertilizer application monitoring
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI	BG CZ DE HU	Agricultural advisory services
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan

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31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
4	A 4	A - Arable Agriculture	**33**	DE SI	AT BG HR HU RO	Vegetated buffer zones along water bodies
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE	Contour cultivation
8	A 8	A - Arable Agriculture	**20**	SI	AT BG CZ HR	Conservation crop rotation – soil properties conservation
19	A 19	A - Arable Agriculture	**20**	RO	AT BG DE HR	Crop selection
5	A 5	A - Arable Agriculture	**11**		AT BG CZ HU RO	Conservation tillage
2	A 2	A - Arable Agriculture	**9**		BG CZ HR RO	Contour stripping (crop rotation)
3	A 3	A - Arable Agriculture	**9**		BG CZ DE RO	Contour stripping - grassing
24	A 24	A - Arable Agriculture	**9**		AT BG CZ HR	Across slope tillage
18	A 18	A - Arable Agriculture	**7**		BG HR RO	The typology of agricultural crops
17	A 17	A - Arable Agriculture	**4**		BG DE	Maintaining uncultivated arable land after harvesting, on at least 20% from the total arable land of the farm
22	A 22	A - Arable Agriculture	**4**		BG HR	Cultivating a greater number of varieties
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
37	B 1	B - Grass Agriculture	**31**	AT SI	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
39	B 3	B - Grass Agriculture	**22**	SI	AT BG CZ DE HU	Vineyards and orchards
42	B 6	B - Grass Agriculture	**18**	AT	BG HU SI	Biological agriculture
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI	Extensive agriculture
51	B 15	B - Grass Agriculture	**7**		BG DE HU	Reintroduction of forest trees and shrubs
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
94	C 38	C - Forestry	**33**	HU RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
62	C 6	C - Forestry	**31**	HU SI	BG DE HR RO	Establishment of mixed forests
85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
61	C 5	C - Forestry	**29**	DE SI	BG HU RO	Avoiding open space
77	C 21	C - Forestry	**29**	HR SI	BG HU RO	Tree species diversity according to the natural forest community

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73	C 17	C - Forestry	**27**	RO SI	BG DE	Establishment of a Continuous Cover Forest System (CCF)
76	C 20	C - Forestry	**24**	RO	BG CZ DE HR HU SI	Continuous regeneration dynamics
81	C 25	C - Forestry	**24**	SI	AT BG CZ DE HU RO	Adequate dead-wood content
96	C 40	C - Forestry	**24**	RO	AT BG CZ DE HR SI	Structural thinning operations
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI	Continuous cover forests
78	C 22	C - Forestry	**22**	RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
59	C 3	C - Forestry	**20**	DE	BG HR HU SI	Soil-conserving timber harvest
60	C 4	C - Forestry	**18**	HR	BG DE HU	Establishing of field shrubs
91	C 35	C - Forestry	**18**	RO	AT BG CZ	Ecological reconstruction of resinous stands from outside the areal
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
70	C 14	C - Forestry	**9**		AT BG HR HU	Use of livestock power for harvesting
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
122	D 23	D - Water Management	**29**	AT SI	BG DE RO	Trainings, awareness raising activities
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
118	D 19	D - Water Management	**11**		BG CZ DE HR RO	Revitalization of waste land/ brownfields
129	E 6	E - Spatial Planning	**51**	AT DE HR SI	BG HU RO	Land reservation for potential drinking water sources
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
126	E 3	E - Spatial Planning	**33**	CZ DE	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
143	F 12	F - TM Agriculture	**42**	CZ HR SI	AT BG DE RO	Flood control canals, lateral canals and connecting canals
134	F 3	F - TM Agriculture	**11**		AT BG CZ DE SI	Sediment trapping reservoir
135	F 4	F - TM Agriculture	**2**		BG	Sediment trapping pool

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148	G 5	G - TM Forestry	**11**		AT BG DE HR SI	Rehabilitation and recultivation of damaged forest terrains
152	H 4	H - TM Water Management	**51**	AT CZ HU SI	BG DE HR	Flood control dams and levees
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI	Construction of retention volumes within the catchments
160	I 2	I - TM Spatial Planning	**40**	DE RO SI	BG CZ HR	Conserve water retention and run off structures in local land use planning
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI	Land policy for flood retention and runoff
172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
167	I 9	I - TM Spatial Planning	**9**		BG CZ HU RO	Incorporating ecological elements into landscape matrix
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI	Modified crop rotation
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI	BG HR HU	Water protective zones for drinking water supply
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO	Stimulation of farmers to implement soil conservation
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones

10.3 Croatia

Table 18: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU	Stubble burning strictly prohibited

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29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
31	A 31	A - Arable Agriculture	**49**	AT CZ DE HU	BG HR	Pesticides application monitoring
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
35	A 35	A - Arable Agriculture	**36**	CZ DE SI	HR	Subsidies for farmers for limitations on DWPZ I
4	A 4	A - Arable Agriculture	**33**	DE SI	AT BG HR HU RO	Vegetated buffer zones along water bodies
14	A 14	A - Arable Agriculture	**29**	DE SI	AT CZ HR	Fertilization with manure and compost – organic matter supply
8	A 8	A - Arable Agriculture	**20**	SI	AT BG CZ HR	Conservation crop rotation – soil properties conservation
10	A 10	A - Arable Agriculture	**20**	SI	AT CZ HR HU	Mulching
19	A 19	A - Arable Agriculture	**20**	RO	AT BG DE HR	Crop selection
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO	Green fertilizers
2	A 2	A - Arable Agriculture	**9**		BG CZ HR RO	Contour stripping (crop rotation)
7	A 7	A - Arable Agriculture	**9**		CZ DE HR RO	Conservation crop rotation – soil erosion conservation
16	A 16	A - Arable Agriculture	**9**		AT CZ DE HR	Winter crops on at least 20% of the total arable slope lands
24	A 24	A - Arable Agriculture	**9**		AT BG CZ HR	Across slope tillage
18	A 18	A - Arable Agriculture	**7**		BG HR RO	The typology of agricultural crops
20	A 20	A - Arable Agriculture	**4**		HR RO	The use of mixed crops
22	A 22	A - Arable Agriculture	**4**		BG HR	Cultivating a greater number of varieties
23	A 23	A - Arable Agriculture	**2**		HR	Grassed waterway
27	A 27	A - Arable Agriculture	**2**		HR	Combined seeding of cover crops and row crops
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI	Dry vegetation burning on permanent pastures is strictly prohibited
38	B 2	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
47	B 11	B - Grass Agriculture	**11**		AT DE HR HU SI	Training of pesticide users, distributers and advisors

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52	B 16	B - Grass Agriculture	**4**		HR RO	Manual mowing in low intensive and vulnerable areas
67	C 11	C - Forestry	**62**	AT BG HU RO SI	CZ DE HR	Policy and legislation initiatives
63	C 7	C - Forestry	**51**	BG DE RO SI	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI	AT HR HU	Special management regime for protective forest
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO	AT HR HU	Restrictions in order to use resources ecologically fragile areas
95	C 39	C - Forestry	**49**	BG DE RO SI	CZ HR	Small-scale regeneration techniques
68	C 12	C - Forestry	**42**	BG RO SI	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI	DE HR HU RO	Limitation of the percentage of timber extraction
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO	Afforestation of clear-cut areas
72	C 16	C - Forestry	**40**	DE RO SI	CZ HR HU	Avoidance of Clear-Cuts
71	C 15	C - Forestry	**38**	AT BG SI	DE HR	Maintaining of the register for torrential watersheds
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
82	C 26	C - Forestry	**33**	BG SI	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI	AT CZ HR HU RO	Selection cutting in forests
94	C 38	C - Forestry	**33**	HU RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
62	C 6	C - Forestry	**31**	HU SI	BG DE HR RO	Establishment of mixed forests
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO	Maintaining optimal structure, as compared hydrology, forest ecosystems
79	C 23	C - Forestry	**31**	BG RO	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
80	C 24	C - Forestry	**31**	DE SI	CZ HR HU RO	Foster old, huge and vital tree individuals
85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
76	C 20	C - Forestry	**24**	RO	BG CZ DE HR HU SI	Continuous regeneration dynamics
96	C 40	C - Forestry	**24**	RO	AT BG CZ DE HR SI	Structural thinning operations
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI	Continuous cover forests
78	C 22	C - Forestry	**22**	RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
58	C 2	C - Forestry	**20**	DE	CZ HR HU RO	Soil conservation liming
59	C 3	C - Forestry	**20**	DE	BG HR HU SI	Soil-conserving timber harvest

97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
89	C 33	C - Forestry	**11**		AT CZ DE HR RO	Fitting integral watershed
70	C 14	C - Forestry	**9**		AT BG HR HU	Use of livestock power for harvesting
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI	DE HR	Establishment of sanitary protection zones (DWPZ)
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI	Flood Risks Management Plans
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI	Hazard and flood risks maps
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control
102	D 3	D - Water Management	**29**	DE HU	AT CZ HR	Ex lege protected water related habitats
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO	Side adapted greening of riparian zones
121	D 22	D - Water Management	**18**	DE	AT HR RO	Greening measures for ground water protection
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
118	D 19	D - Water Management	**11**		BG CZ DE HR RO	Revitalization of waste land/ brownfields
126	E 3	E - Spatial Planning	**33**	CZ DE	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
130	E 7	E - Spatial Planning	**29**	DE SI	CZ HR RO	Definition of river corridor and riparian area (land parcels / cadastre)
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI	Ecological structures within the landscape
128	E 5	E - Spatial Planning	**11**		DE HR HU RO SI	Land use coordination in river catchments by inter-municipal cooperation
142	F 11	F - TM Agriculture	**27**	DE SI	HR RO	Retarding basins
133	F 2	F - TM Agriculture	**9**		DE HR HU RO	Hedges
139	F 8	F - TM Agriculture	**9**		AT DE HR SI	Terraces

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141	F 10	F - TM Agriculture	**9**		CZ DE HR RO	Water retention strips (furrows)
137	F 6	F - TM Agriculture	**7**		DE HR RO	Infiltrating ditches
148	G 5	G - TM Forestry	**11**		AT BG DE HR SI	Rehabilitation and recultivation of damaged forest terrains
144	G 1	G - TM Forestry	**9**		DE HR RO SI	Retention pools
152	H 4	H - TM Water Management	**51**	AT CZ HU SI	BG DE HR	Flood control dams and levees
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
154	H 6	H - TM Water Management	**20**	HU	DE HR RO SI	Restoration of wetlands areas
156	H 8	H - TM Water Management	**18**	HU	AT DE HR	Restoration of old and recent and establishment of new wetlands
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI	Construction of retention volumes within the catchments
151	H 3	H - TM Water Management	**9**		CZ HR HU SI	Retention spaces within the catchment
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
159	I 1	I - TM Spatial Planning	**42**	BG DE SI	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO	Strict incorporation of complete waste water treatment plant into each settlement
160	I 2	I - TM Spatial Planning	**40**	DE RO SI	BG CZ HR	Conserve water retention and run off structures in local land use planning
166	I 8	I - TM Spatial Planning	**31**	DE SI	AT CZ HR HU	Proclamation of particular land particle as a water resource
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI	Reservation zones
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI	Land policy for flood retention and runoff
172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
171	I 13	I - TM Spatial Planning	**18**	SI	CZ DE HR	Rainwater is infiltrated directly at the parcel
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
168	I 10	I - TM Spatial Planning	**7**		DE HR SI	Natural measures for water retention in urban zones
170	I 12	I - TM Spatial Planning	**7**		DE HR RO	Reducing the increase of sealed surfaces within settlement areas
180	J 4	J - Land Consolidation	**27**	CZ DE	HR SI	Permanent grassing
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI	Permanent afforestation

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179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI	Modified crop rotation
178	J 2	J - Land Consolidation	**18**	CZ	AT HR SI	Design and implementation of “common structures”
182	J 6	J - Land Consolidation	**9**		AT CZ HR SI	Readjustment of land for public projects (e.g. flood prevention, nature conservation)
187	K 4	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of surface waters
190	K 7	K - SW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Defining areas for the protection of aquatic species
191	K 8	K - SW Protection Zones	**62**	CZ DE HU RO SI	AT BG HR	Identifying protected areas for habitats and species where water is an important factor
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI	BG HR HU	Water protective zones for drinking water supply
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products
189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO	Stimulation of farmers to implement soil conservation
197	L 4	L - GW Protection Zones	**80**	AT BG CZ DE HU RO SI	HR	Monitoring of groundwater
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI	HR HU RO	Integration of groundwater protection zones into spatial planning
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI	Prohibition of the use of chemical fertilizers in the protection zones
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI	Prohibition of the use of natural and chemical fertilizers in the protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO	Stimulation of farmers to implement soil conservation

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10.4 Czechia

Table 19: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI	BG CZ DE HU	Agricultural advisory services
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE	Contour cultivation
14	A 14	A - Arable Agriculture	**29**	DE SI	AT CZ HR	Fertilization with manure and compost – organic matter supply
8	A 8	A - Arable Agriculture	**20**	SI	AT BG CZ HR	Conservation crop rotation – soil properties conservation
10	A 10	A - Arable Agriculture	**20**	SI	AT CZ HR HU	Mulching
5	A 5	A - Arable Agriculture	**11**		AT BG CZ HU RO	Conservation tillage
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO	Green fertilizers
2	A 2	A - Arable Agriculture	**9**		BG CZ HR RO	Contour stripping (crop rotation)
3	A 3	A - Arable Agriculture	**9**		BG CZ DE RO	Contour stripping - grassing
7	A 7	A - Arable Agriculture	**9**		CZ DE HR RO	Conservation crop rotation – soil erosion conservation
16	A 16	A - Arable Agriculture	**9**		AT CZ DE HR	Winter crops on at least 20% of the total arable slope lands
24	A 24	A - Arable Agriculture	**9**		AT BG CZ HR	Across slope tillage
25	A 25	A - Arable Agriculture	**4**		AT CZ	Fixed retention ponds
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
38	B 2	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
37	B 1	B - Grass Agriculture	**31**	AT SI	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)
45	B 9	B - Grass Agriculture	**29**	BG DE	AT CZ SI	Proper density of cattle at the pastures
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
39	B 3	B - Grass Agriculture	**22**	SI	AT BG CZ DE HU	Vineyards and orchards

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46	B 10	B - Grass Agriculture	**22**	BG	AT CZ HU RO SI	Low input systems in livestock production
40	B 4	B - Grass Agriculture	**16**	AT	CZ DE	Vineyards and orchards
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
67	C 11	C - Forestry	**62**	AT BG HU RO SI	CZ DE HR	Policy and legislation initiatives
95	C 39	C - Forestry	**49**	BG DE RO SI	CZ HR	Small-scale regeneration techniques
68	C 12	C - Forestry	**42**	BG RO SI	CZ DE HR HU	Stabilization of riverside lands
72	C 16	C - Forestry	**40**	DE RO SI	CZ HR HU	Avoidance of Clear-Cuts
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
87	C 31	C - Forestry	**33**	BG SI	AT CZ HR HU RO	Selection cutting in forests
94	C 38	C - Forestry	**33**	HU RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO	Maintaining optimal structure, as compared hydrology, forest ecosystems
79	C 23	C - Forestry	**31**	BG RO	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
80	C 24	C - Forestry	**31**	DE SI	CZ HR HU RO	Foster old, huge and vital tree individuals
85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
76	C 20	C - Forestry	**24**	RO	BG CZ DE HR HU SI	Continuous regeneration dynamics
81	C 25	C - Forestry	**24**	SI	AT BG CZ DE HU RO	Adequate dead-wood content
96	C 40	C - Forestry	**24**	RO	AT BG CZ DE HR SI	Structural thinning operations
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
78	C 22	C - Forestry	**22**	RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
58	C 2	C - Forestry	**20**	DE	CZ HR HU RO	Soil conservation liming
74	C 18	C - Forestry	**20**	BG	CZ DE HU RO	Defined canopy cover percentage of forest stands
91	C 35	C - Forestry	**18**	RO	AT BG CZ	Ecological reconstruction of resinous stands from outside the areal
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
89	C 33	C - Forestry	**11**		AT CZ DE HR RO	Fitting integral watershed
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI	Flood Risks Management Plans
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas

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107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI	Hazard and flood risks maps
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
114	D 15	D - Water Management	**40**	DE RO SI	AT BG CZ	Eco- morphological investigations along rivers, brooks / torrents
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control
112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
102	D 3	D - Water Management	**29**	DE HU	AT CZ HR	Ex lege protected water related habitats
106	D 7	D - Water Management	**27**	DE HR	CZ SI	Economic measures addressing water scarcity and drought
119	D 20	D - Water Management	**27**	DE RO	CZ SI	Revitalisation of surface drains, slurry pits
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO	Side adapted greening of riparian zones
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
118	D 19	D - Water Management	**11**		BG CZ DE HR RO	Revitalization of waste land/ brownfields
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU	Incorporation of water management plans into physical (spatial) planning
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
130	E 7	E - Spatial Planning	**29**	DE SI	CZ HR RO	Definition of river corridor and riparian area (land parcels / cadastre)
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI	Ecological structures within the landscape
132	F 1	F - TM Agriculture	**27**	HR RO	CZ DE	Ditches
134	F 3	F - TM Agriculture	**11**		AT BG CZ DE SI	Sediment trapping reservoir
141	F 10	F - TM Agriculture	**9**		CZ DE HR RO	Water retention strips (furrows)
140	F 9	F - TM Agriculture	**4**		CZ SI	Grassed waterways
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI	Road runoff
147	G 4	G - TM Forestry	**2**		CZ	Maintaining of existing and building new infrastructure in the affected of erosion regions
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI	Construction of retention volumes within the catchments
151	H 3	H - TM Water Management	**9**		CZ HR HU SI	Retention spaces within the catchment

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155	H 7	H - TM Water Management	**9**		AT CZ DE HU	Creek renaturation
159	I 1	I - TM Spatial Planning	**42**	BG DE SI	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
160	I 2	I - TM Spatial Planning	**40**	DE RO SI	BG CZ HR	Conserve water retention and run off structures in local land use planning
166	I 8	I - TM Spatial Planning	**31**	DE SI	AT CZ HR HU	Proclamation of particular land particle as a water resource
171	I 13	I - TM Spatial Planning	**18**	SI	CZ DE HR	Rainwater is infiltrated directly at the parcel
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
167	I 9	I - TM Spatial Planning	**9**		BG CZ HU RO	Incorporating ecological elements into landscape matrix
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI	Permanent afforestation
177	J 1	J - Land Consolidation	**20**	DE	AT CZ HU RO	Change of size and shape of individual parcels
183	J 7	J - Land Consolidation	**18**	SI	AT CZ HU	Multi-purpose development projects (e.g. water reservoirs,..)
182	J 6	J - Land Consolidation	**9**		AT CZ HR SI	Readjustment of land for public projects (e.g. flood prevention, nature conservation)
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI	Proper land use and spatial planning within the areas of interest
201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones

10.5 Germany

Table 20: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI	BG CZ DE HU	Agricultural advisory services
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE	Contour cultivation
19	A 19	A - Arable Agriculture	**20**	RO	AT BG DE HR	Crop selection
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO	Green fertilizers
3	A 3	A - Arable Agriculture	**9**		BG CZ DE RO	Contour stripping - grassing
7	A 7	A - Arable Agriculture	**9**		CZ DE HR RO	Conservation crop rotation – soil erosion conservation
16	A 16	A - Arable Agriculture	**9**		AT CZ DE HR	Winter crops on at least 20% of the total arable slope lands

17	A 17	A - Arable Agriculture	**4**		BG DE	Maintaining uncultivated arable land after harvesting, on at least 20% from the total arable land of the farm
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI	Dry vegetation burning on permanent pastures is strictly prohibited
37	B 1	B - Grass Agriculture	**31**	AT SI	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
39	B 3	B - Grass Agriculture	**22**	SI	AT BG CZ DE HU	Vineyards and orchards
40	B 4	B - Grass Agriculture	**16**	AT	CZ DE	Vineyards and orchards
47	B 11	B - Grass Agriculture	**11**		AT DE HR HU SI	Training of pesticide users, distributers and advisors
51	B 15	B - Grass Agriculture	**7**		BG DE HU	Reintroduction of forest trees and shrubs
56	B 20	B - Grass Agriculture	**7**		DE HU RO	Removal of old drainage systems in wet land areas
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
67	C 11	C - Forestry	**62**	AT BG HU RO SI	CZ DE HR	Policy and legislation initiatives
68	C 12	C - Forestry	**42**	BG RO SI	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI	DE HR HU RO	Limitation of the percentage of timber extraction
71	C 15	C - Forestry	**38**	AT BG SI	DE HR	Maintaining of the register for torrential watersheds
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
82	C 26	C - Forestry	**33**	BG SI	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
94	C 38	C - Forestry	**33**	HU RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
62	C 6	C - Forestry	**31**	HU SI	BG DE HR RO	Establishment of mixed forests
79	C 23	C - Forestry	**31**	BG RO	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
65	C 9	C - Forestry	**27**	RO SI	DE HU	Identification and protection of virgin forests
73	C 17	C - Forestry	**27**	RO SI	BG DE	Establishment of a Continuous Cover Forest System (CCF)
76	C 20	C - Forestry	**24**	RO	BG CZ DE HR HU SI	Continuous regeneration dynamics
81	C 25	C - Forestry	**24**	SI	AT BG CZ DE HU RO	Adequate dead-wood content
96	C 40	C - Forestry	**24**	RO	AT BG CZ DE HR SI	Structural thinning operations
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI	Continuous cover forests

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78	C 22	C - Forestry	**22**	RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
74	C 18	C - Forestry	**20**	BG	CZ DE HU RO	Defined canopy cover percentage of forest stands
60	C 4	C - Forestry	**18**	HR	BG DE HU	Establishing of field shrubs
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
89	C 33	C - Forestry	**11**		AT CZ DE HR RO	Fitting integral watershed
103	D 4	D - Water Management	**71**	AT BG CZ HU RO SI	DE HR	Establishment of sanitary protection zones (DWPZ)
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control
122	D 23	D - Water Management	**29**	AT SI	BG DE RO	Trainings, awareness raising activities
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
118	D 19	D - Water Management	**11**		BG CZ DE HR RO	Revitalization of waste land/ brownfields
111	D 12	D - Water Management	**9**		AT DE HU RO	Connection of old river streams to the main stream,
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
128	E 5	E - Spatial Planning	**11**		DE HR HU RO SI	Land use coordination in river catchments by inter-municipal cooperation
143	F 12	F - TM Agriculture	**42**	CZ HR SI	AT BG DE RO	Flood control canals, lateral canals and connecting canals
132	F 1	F - TM Agriculture	**27**	HR RO	CZ DE	Ditches
134	F 3	F - TM Agriculture	**11**		AT BG CZ DE SI	Sediment trapping reservoir
133	F 2	F - TM Agriculture	**9**		DE HR HU RO	Hedges
136	F 5	F - TM Agriculture	**9**		AT DE RO SI	Sediment control dams
139	F 8	F - TM Agriculture	**9**		AT DE HR SI	Terraces
141	F 10	F - TM Agriculture	**9**		CZ DE HR RO	Water retention strips (furrows)
137	F 6	F - TM Agriculture	**7**		DE HR RO	Infiltrating ditches

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145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI	Road runoff
148	G 5	G - TM Forestry	**11**		AT BG DE HR SI	Rehabilitation and recultivation of damaged forest terrains
144	G 1	G - TM Forestry	**9**		DE HR RO SI	Retention pools
152	H 4	H - TM Water Management	**51**	AT CZ HU SI	BG DE HR	Flood control dams and levees
153	H 5	H - TM Water Management	**40**	BG HU SI	CZ DE HR	Floodplains protection – to spill and store (flood wave transform) flood water
154	H 6	H - TM Water Management	**20**	HU	DE HR RO SI	Restoration of wetlands areas
149	H 1	H - TM Water Management	**18**	CZ	AT DE SI	Revitalization of streams
156	H 8	H - TM Water Management	**18**	HU	AT DE HR	Restoration of old and recent and establishment of new wetlands
158	H 10	H - TM Water Management	**13**	CZ	DE	Strict construction of retention structures accompanying important sealed areas
155	H 7	H - TM Water Management	**9**		AT CZ DE HU	Creek renaturation
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO	Strict incorporation of complete waste water treatment plant into each settlement
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI	Reservation zones
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI	Land policy for flood retention and runoff
171	I 13	I - TM Spatial Planning	**18**	SI	CZ DE HR	Rainwater is infiltrated directly at the parcel
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
168	I 10	I - TM Spatial Planning	**7**		DE HR SI	Natural measures for water retention in urban zones
170	I 12	I - TM Spatial Planning	**7**		DE HR RO	Reducing the increase of sealed surfaces within settlement areas
161	I 3	I - TM Spatial Planning	**4**		DE HU	Keeping low percentage of sealed surfaces within urbanization
163	I 5	I - TM Spatial Planning	**2**		DE	Incorporating of artificial wetlands into urbanization
169	I 11	I - TM Spatial Planning	**2**		DE	Maps indicating the degree of negative hydrological effects of surface sealing
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI	Modified crop rotation
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO	Stimulation of farmers to implement soil conservation

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185	K 2	K - SW Protection Zones	**16**	CZ	DE RO	Stimulation of land owners to implement soil conservation
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI	Proper land use and spatial planning within the areas of interest
202	L 9	L - GW Protection Zones	**47**	AT CZ RO SI	DE	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI	Prohibition of the use of natural and chemical fertilizers in the protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO	Stimulation of farmers to implement soil conservation
195	L 2	L - GW Protection Zones	**18**	CZ	DE HU RO	Stimulation of land owners to implement soil conservation

10.6 Hungary

Table 21: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU	Stubble burning strictly prohibited
36	A 36	A - Arable Agriculture	**53**	AT HR HU SI	BG CZ DE HU	Agricultural advisory services
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
4	A 4	A - Arable Agriculture	**33**	DE SI	AT BG HR HU RO	Vegetated buffer zones along water bodies
10	A 10	A - Arable Agriculture	**20**	SI	AT CZ HR HU	Mulching
5	A 5	A - Arable Agriculture	**11**		AT BG CZ HU RO	Conservation tillage
55	B 19	B - Grass Agriculture	**51**	AT BG HU RO	CZ DE HU	Sustainable agriculture in nature-protected areas
48	B 12	B - Grass Agriculture	**44**	AT RO SI	BG CZ DE HR HU	Establishment of advisory services
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI	Dry vegetation burning on permanent pastures is strictly prohibited
38	B 2	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
37	B 1	B - Grass Agriculture	**31**	AT SI	BG CZ DE HU	Wine production with soil conservation practices (mulching, permanent grass, …)

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49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
39	B 3	B - Grass Agriculture	**22**	SI	AT BG CZ DE HU	Vineyards and orchards
46	B 10	B - Grass Agriculture	**22**	BG	AT CZ HU RO SI	Low input systems in livestock production
42	B 6	B - Grass Agriculture	**18**	AT	BG HU SI	Biological agriculture
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI	Extensive agriculture
47	B 11	B - Grass Agriculture	**11**		AT DE HR HU SI	Training of pesticide users, distributers and advisors
51	B 15	B - Grass Agriculture	**7**		BG DE HU	Reintroduction of forest trees and shrubs
56	B 20	B - Grass Agriculture	**7**		DE HU RO	Removal of old drainage systems in wet land areas
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
63	C 7	C - Forestry	**51**	BG DE RO SI	AT HR HU	Establishment of protective forests
69	C 13	C - Forestry	**51**	BG DE RO SI	AT HR HU	Special management regime for protective forest
92	C 36	C - Forestry	**51**	CZ DE HU RO	AT HR HU	Grazing prohibiting domestic animals in forests
93	C 37	C - Forestry	**51**	BG CZ DE RO	AT HR HU	Restrictions in order to use resources ecologically fragile areas
68	C 12	C - Forestry	**42**	BG RO SI	CZ DE HR HU	Stabilization of riverside lands
75	C 19	C - Forestry	**42**	BG CZ SI	DE HR HU RO	Limitation of the percentage of timber extraction
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO	Afforestation of clear-cut areas
72	C 16	C - Forestry	**40**	DE RO SI	CZ HR HU	Avoidance of Clear-Cuts
86	C 30	C - Forestry	**38**	CZ DE RO	AT HU	Stop of chemical fertilizers and pesticides and herbicides, support of manual processing
84	C 28	C - Forestry	**36**	RO SI	AT BG CZ DE HR HU	Natural forest succession in case of stable forest ecosystems
82	C 26	C - Forestry	**33**	BG SI	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI	AT CZ HR HU RO	Selection cutting in forests
94	C 38	C - Forestry	**33**	HU RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO	Maintaining optimal structure, as compared hydrology, forest ecosystems
79	C 23	C - Forestry	**31**	BG RO	CZ DE HR HU	Protection of the gene pool of the autochthonous tree species
80	C 24	C - Forestry	**31**	DE SI	CZ HR HU RO	Foster old, huge and vital tree individuals
61	C 5	C - Forestry	**29**	DE SI	BG HU RO	Avoiding open space
77	C 21	C - Forestry	**29**	HR SI	BG HU RO	Tree species diversity according to the natural forest community
65	C 9	C - Forestry	**27**	RO SI	DE HU	Identification and protection of virgin forests

76	C 20	C - Forestry	**24**	RO	BG CZ DE HR HU SI	Continuous regeneration dynamics
81	C 25	C - Forestry	**24**	SI	AT BG CZ DE HU RO	Adequate dead-wood content
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI	Continuous cover forests
78	C 22	C - Forestry	**22**	RO	BG CZ DE HR HU	Improve the structural diversity of the forest stands
58	C 2	C - Forestry	**20**	DE	CZ HR HU RO	Soil conservation liming
59	C 3	C - Forestry	**20**	DE	BG HR HU SI	Soil-conserving timber harvest
74	C 18	C - Forestry	**20**	BG	CZ DE HU RO	Defined canopy cover percentage of forest stands
60	C 4	C - Forestry	**18**	HR	BG DE HU	Establishing of field shrubs
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
70	C 14	C - Forestry	**9**		AT BG HR HU	Use of livestock power for harvesting
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI	Flood Risks Management Plans
115	D 16	D - Water Management	**53**	CZ DE RO SI	AT BG HR HU	Designation of protected ground water areas
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
104	D 5	D - Water Management	**44**	AT RO SI	BG CZ DE HR HU	Protection against accidental pollutions
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO	Side adapted greening of riparian zones
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
111	D 12	D - Water Management	**9**		AT DE HU RO	Connection of old river streams to the main stream,
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU	Incorporation of water management plans into physical (spatial) planning
125	E 2	E - Spatial Planning	**51**	BG HR RO SI	CZ DE HU	Wide discussion process including local activities and stake-holders
129	E 6	E - Spatial Planning	**51**	AT DE HR SI	BG HU RO	Land reservation for potential drinking water sources
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
126	E 3	E - Spatial Planning	**33**	CZ DE	AT BG HR HU RO	Regional plans or regional (landscape) development concepts

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128	E 5	E - Spatial Planning	**11**		DE HR HU RO SI	Land use coordination in river catchments by inter-municipal cooperation
133	F 2	F - TM Agriculture	**9**		DE HR HU RO	Hedges
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI	Road runoff
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI	Construction of retention volumes within the catchments
151	H 3	H - TM Water Management	**9**		CZ HR HU SI	Retention spaces within the catchment
155	H 7	H - TM Water Management	**9**		AT CZ DE HU	Creek renaturation
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
159	I 1	I - TM Spatial Planning	**42**	BG DE SI	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO	Strict incorporation of complete waste water treatment plant into each settlement
166	I 8	I - TM Spatial Planning	**31**	DE SI	AT CZ HR HU	Proclamation of particular land particle as a water resource
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI	Land policy for flood retention and runoff
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
167	I 9	I - TM Spatial Planning	**9**		BG CZ HU RO	Incorporating ecological elements into landscape matrix
161	I 3	I - TM Spatial Planning	**4**		DE HU	Keeping low percentage of sealed surfaces within urbanization
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI	Permanent afforestation
177	J 1	J - Land Consolidation	**20**	DE	AT CZ HU RO	Change of size and shape of individual parcels
183	J 7	J - Land Consolidation	**18**	SI	AT CZ HU	Multi-purpose development projects (e.g. water reservoirs,..)
192	K 9	K - SW Protection Zones	**51**	CZ DE RO SI	BG HR HU	Water protective zones for drinking water supply
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI	Proper land use and spatial planning within the areas of interest
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI	HU RO	Prevention of direct wastewater discharge into groundwater
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI	Prohibition of the use of chemical fertilizers in the protection zones

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201	L 8	L - GW Protection Zones	**53**	AT DE RO SI	BG CZ HR HU	Building bans and building restrictions in groundwater protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO	Stimulation of farmers to implement soil conservation
195	L 2	L - GW Protection Zones	**18**	CZ	DE HU RO	Stimulation of land owners to implement soil conservation

10.7 Romania

Table 22: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
28	A 28	A - Arable Agriculture	**62**	AT CZ DE HU SI	BG HR RO	Fertilizer application plan
29	A 29	A - Arable Agriculture	**51**	AT CZ DE HU	BG HR RO	Pesticides application plan
13	A 13	A - Arable Agriculture	**36**	DE SI	AT BG CZ HR HU RO	Proper irrigation applying
4	A 4	A - Arable Agriculture	**33**	DE SI	AT BG HR HU RO	Vegetated buffer zones along water bodies
5	A 5	A - Arable Agriculture	**11**		AT BG CZ HU RO	Conservation tillage
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO	Green fertilizers
2	A 2	A - Arable Agriculture	**9**		BG CZ HR RO	Contour stripping (crop rotation)
3	A 3	A - Arable Agriculture	**9**		BG CZ DE RO	Contour stripping - grassing
7	A 7	A - Arable Agriculture	**9**		CZ DE HR RO	Conservation crop rotation – soil erosion conservation
18	A 18	A - Arable Agriculture	**7**		BG HR RO	The typology of agricultural crops
11	A 11	A - Arable Agriculture	**4**		AT RO	Organic farming
20	A 20	A - Arable Agriculture	**4**		HR RO	The use of mixed crops
38	B 2	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Vineyards and orchards
50	B 14	B - Grass Agriculture	**33**	DE SI	AT CZ HR HU RO	Maintaining in good conditions of the already existing terraces
46	B 10	B - Grass Agriculture	**22**	BG	AT CZ HU RO SI	Low input systems in livestock production
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI	Extensive agriculture
56	B 20	B - Grass Agriculture	**7**		DE HU RO	Removal of old drainage systems in wet land areas
52	B 16	B - Grass Agriculture	**4**		HR RO	Manual mowing in low intensive and vulnerable areas

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53	B 17	B - Grass Agriculture	**2**		RO	Application of agro-forestry practices
75	C 19	C - Forestry	**42**	BG CZ SI	DE HR HU RO	Limitation of the percentage of timber extraction
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO	Afforestation of clear-cut areas
82	C 26	C - Forestry	**33**	BG SI	AT DE HR HU RO	Buffer strips along streams, rivers, dolines and sinkholes
87	C 31	C - Forestry	**33**	BG SI	AT CZ HR HU RO	Selection cutting in forests
62	C 6	C - Forestry	**31**	HU SI	BG DE HR RO	Establishment of mixed forests
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO	Maintaining optimal structure, as compared hydrology, forest ecosystems
80	C 24	C - Forestry	**31**	DE SI	CZ HR HU RO	Foster old, huge and vital tree individuals
85	C 29	C - Forestry	**31**	DE SI	BG CZ HR RO	Source water protection policy and institutional implications
90	C 34	C - Forestry	**31**	CZ DE	AT BG HR RO	Afforestation of degraded lands
61	C 5	C - Forestry	**29**	DE SI	BG HU RO	Avoiding open space
77	C 21	C - Forestry	**29**	HR SI	BG HU RO	Tree species diversity according to the natural forest community
81	C 25	C - Forestry	**24**	SI	AT BG CZ DE HU RO	Adequate dead-wood content
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
58	C 2	C - Forestry	**20**	DE	CZ HR HU RO	Soil conservation liming
74	C 18	C - Forestry	**20**	BG	CZ DE HU RO	Defined canopy cover percentage of forest stands
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
88	C 32	C - Forestry	**13**		AT BG CZ HR HU RO	Ecological reconstruction of forests damaged by biotic and abiotic factors
89	C 33	C - Forestry	**11**		AT CZ DE HR RO	Fitting integral watershed
100	D 1	D - Water Management	**51**	DE HR HU SI	CZ HU RO	Protection of wetlands areas
105	D 6	D - Water Management	**51**	CZ DE HU SI	BG HR RO	Observing and warning (monitoring, forecast, alarming) system for integrated water management
123	D 24	D - Water Management	**40**	CZ DE SI	AT HR RO	Establishing Water safety plans (water supply)
110	D 11	D - Water Management	**33**	BG SI	AT CZ DE HR RO	Integrated Nutrient Pollution Control
112	D 13	D - Water Management	**31**	DE SI	AT BG CZ RO	Fish ladders
122	D 23	D - Water Management	**29**	AT SI	BG DE RO	Trainings, awareness raising activities
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains

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116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO	Side adapted greening of riparian zones
121	D 22	D - Water Management	**18**	DE	AT HR RO	Greening measures for ground water protection
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
118	D 19	D - Water Management	**11**		BG CZ DE HR RO	Revitalization of waste land/ brownfields
111	D 12	D - Water Management	**9**		AT DE HU RO	Connection of old river streams to the main stream,
129	E 6	E - Spatial Planning	**51**	AT DE HR SI	BG HU RO	Land reservation for potential drinking water sources
127	E 4	E - Spatial Planning	**44**	CZ HR SI	AT BG DE HU RO	Local development concepts
126	E 3	E - Spatial Planning	**33**	CZ DE	AT BG HR HU RO	Regional plans or regional (landscape) development concepts
130	E 7	E - Spatial Planning	**29**	DE SI	CZ HR RO	Definition of river corridor and riparian area (land parcels / cadastre)
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI	Ecological structures within the landscape
128	E 5	E - Spatial Planning	**11**		DE HR HU RO SI	Land use coordination in river catchments by inter-municipal cooperation
143	F 12	F - TM Agriculture	**42**	CZ HR SI	AT BG DE RO	Flood control canals, lateral canals and connecting canals
142	F 11	F - TM Agriculture	**27**	DE SI	HR RO	Retarding basins
133	F 2	F - TM Agriculture	**9**		DE HR HU RO	Hedges
136	F 5	F - TM Agriculture	**9**		AT DE RO SI	Sediment control dams
141	F 10	F - TM Agriculture	**9**		CZ DE HR RO	Water retention strips (furrows)
137	F 6	F - TM Agriculture	**7**		DE HR RO	Infiltrating ditches
138	F 7	F - TM Agriculture	**4**		RO SI	Infiltrating pools
144	G 1	G - TM Forestry	**9**		DE HR RO SI	Retention pools
154	H 6	H - TM Water Management	**20**	HU	DE HR RO SI	Restoration of wetlands areas
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO	Zones with high potential flood-risks have closure for constructing activities
159	I 1	I - TM Spatial Planning	**42**	BG DE SI	CZ HR HU RO	To reserve space within the catchment for natural floodplains, water reservoirs, polders, dry reservoirs and other retention structures
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO	Strict incorporation of complete waste water treatment plant into each settlement
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI	Reservation zones
162	I 4	I - TM Spatial Planning	**24**	SI	AT BG DE HR HU RO	Rainwater is infiltrated directly at the parcel

172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
167	I 9	I - TM Spatial Planning	**9**		BG CZ HU RO	Incorporating ecological elements into landscape matrix
170	I 12	I - TM Spatial Planning	**7**		DE HR RO	Reducing the increase of sealed surfaces within settlement areas
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI	Permanent afforestation
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI	Modified crop rotation
177	J 1	J - Land Consolidation	**20**	DE	AT CZ HU RO	Change of size and shape of individual parcels
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO	Stimulation of farmers to implement soil conservation
185	K 2	K - SW Protection Zones	**16**	CZ	DE RO	Stimulation of land owners to implement soil conservation
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI	Proper land use and spatial planning within the areas of interest
196	L 3	L - GW Protection Zones	**62**	AT BG CZ DE SI	HR HU RO	Integration of groundwater protection zones into spatial planning
198	L 5	L - GW Protection Zones	**60**	AT BG CZ DE SI	HU RO	Prevention of direct wastewater discharge into groundwater
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI	Prohibition of the use of chemical fertilizers in the protection zones
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI	Prohibition of the use of natural and chemical fertilizers in the protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO	Stimulation of farmers to implement soil conservation
195	L 2	L - GW Protection Zones	**18**	CZ	DE HU RO	Stimulation of land owners to implement soil conservation

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10.8Serbia

Table 23: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
9	A 9	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR HU RS	Stubble burning strictly prohibited
1	A 1	A - Arable Agriculture	**29**	HR SI	BG CZ DE RS	Contour cultivation
21	A 21	A - Arable Agriculture	**11**		AT CZ DE HR RO RS	Green fertilizers
2	A 2	A - Arable Agriculture	**9**		BG CZ HR RO RS	Contour stripping (crop rotation)
11	A 11	A - Arable Agriculture	**4**		AT RO RS	Organic farming
17	A 17	A - Arable Agriculture	**4**		BG DE RS	Maintaining uncultivated arable land after harvesting, on at least 20% from the total arable land of the farm
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI RS	Dry vegetation burning on permanent pastures is strictly prohibited
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI RS	Increasing the efficiency of irrigation systems
42	B 6	B - Grass Agriculture	**18**	AT	BG HU SI RS	Biological agriculture
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI RS	Extensive agriculture
57	C 1	C - Forestry	**40**	AT CZ DE	HR HU RO RS	Afforestation of clear-cut areas
64	C 8	C - Forestry	**31**	BG SI	CZ HR HU RO RS	Maintaining optimal structure, as compared hydrology, forest ecosystems
61	C 5	C - Forestry	**29**	DE SI	BG HU RO RS	Avoiding open space
65	C 9	C - Forestry	**27**	RO SI	DE HU RS	Identification and protection of virgin forests
73	C 17	C - Forestry	**27**	RO SI	BG DE RS	Establishment of a Continuous Cover Forest System (CCF)
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI RS	Continuous cover forests
59	C 3	C - Forestry	**20**	DE	BG HR HU SI RS	Soil-conserving timber harvest
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI RS	Artificial recruitment techniques
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI RS	Flood Risks Management Plans
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI RS	Hazard and flood risks maps
119	D 20	D - Water Management	**27**	DE RO	CZ SI RS	Revitalisation of surface drains, slurry pits
116	D 17	D - Water Management	**22**	DE	AT CZ HR HU RO RS	Side adapted greening of riparian zones
131	E 8	E - Spatial Planning	**60**	AT DE HR RO SI	CZ HU RS	Incorporation of water management plans into physical (spatial) planning
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI RS	Ecological structures within the landscape
142	F 11	F - TM Agriculture	**27**	DE SI	HR RO RS	Retarding basins

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133	F 2	F - TM Agriculture	**9**		DE HR HU RO RS	Hedges
140	F 9	F - TM Agriculture	**4**		CZ SI RS	Grassed waterways
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI RS	Road runoff
148	G 5	G - TM Forestry	**11**		AT BG DE HR SI RS	Rehabilitation and recultivation of damaged forest terrains
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI RS	Construction of retention volumes within the catchments
151	H 3	H - TM Water Management	**9**		CZ HR HU SI RS	Retention spaces within the catchment
175	I 17	I - TM Spatial Planning	**44**	BG CZ SI	AT DE HR HU RO RS	Zones with high potential flood-risks have closure for constructing activities
164	I 6	I - TM Spatial Planning	**42**	AT CZ SI	DE HR HU RO RS	Strict incorporation of complete waste water treatment plant into each settlement
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI RS	Reservation zones
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI RS	Land policy for flood retention and runoff
172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI RS	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
180	J 4	J - Land Consolidation	**27**	CZ DE	HR SI RS	Permanent grassing
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI RS	Permanent afforestation
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI RS	Modified crop rotation
178	J 2	J - Land Consolidation	**18**	CZ	AT HR SI RS	Design and implementation of “common structures”
193	K 10	K - SW Protection Zones	**62**	AT CZ HU RO SI	BG DE HR RS	Restrictions on application of fertilizers on saturated, flooded, frozen or snow-covered plots
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI RS	Monitoring of production, import and use of chemical products
189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI RS	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
184	K 1	K - SW Protection Zones	**31**	AT CZ	BG DE HR RO RS	Stimulation of farmers to implement soil conservation
185	K 2	K - SW Protection Zones	**16**	CZ	DE RO RS	Stimulation of land owners to implement soil conservation
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI RS	Proper land use and spatial planning within the areas of interest
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI RS	Prohibition of the use of chemical fertilizers in the protection zones
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI RS	Prohibition of the use of natural and chemical fertilizers in the protection zones
194	L 1	L - GW Protection Zones	**31**	AT CZ	DE HR HU RO RS	Stimulation of farmers to implement soil conservation

195	L 2	L - GW Protection Zones	**18**	CZ	DE HU RO RS	Stimulation of land owners to implement soil conservation

10.9 Slovenia

Table 24: Normal frequency practices listed from the most frequent to the least frequent in Danube countries – separately for each land management segment

No.	Topic No	Segment	IF	High	Normal	Measures
32	A 32	A - Arable Agriculture	**60**	AT BG CZ DE HU	HR SI	Fertilizer application inspection
33	A 33	A - Arable Agriculture	**49**	AT CZ DE HU	HR SI	Pesticides application inspection
43	B 7	B - Grass Agriculture	**42**	BG DE HU	AT CZ HU SI	Well-fare practices at grazing
44	B 8	B - Grass Agriculture	**42**	AT BG CZ	DE HR HU SI	Dry vegetation burning on permanent pastures is strictly prohibited
45	B 9	B - Grass Agriculture	**29**	BG DE	AT CZ SI	Proper density of cattle at the pastures
49	B 13	B - Grass Agriculture	**27**	RO	AT BG CZ DE HR HU SI	Increasing the efficiency of irrigation systems
46	B 10	B - Grass Agriculture	**22**	BG	AT CZ HU RO SI	Low input systems in livestock production
42	B 6	B - Grass Agriculture	**18**	AT	BG HU SI	Biological agriculture
41	B 5	B - Grass Agriculture	**11**		AT BG HU RO SI	Extensive agriculture
47	B 11	B - Grass Agriculture	**11**		AT DE HR HU SI	Training of pesticide users, distributers and advisors
98	C 42	C - Forestry	**64**	AT BG HR HU RO	CZ DE HU SI	Forest fire prevention
76	C 20	C - Forestry	**24**	RO	BG CZ DE HR HU SI	Continuous regeneration dynamics
96	C 40	C - Forestry	**24**	RO	AT BG CZ DE HR SI	Structural thinning operations
99	C 43	C - Forestry	**24**	DE	AT CZ HR HU RO SI	Adequate timber yield techniques
66	C 10	C - Forestry	**22**	RO	BG DE HR HU SI	Continuous cover forests
59	C 3	C - Forestry	**20**	DE	BG HR HU SI	Soil-conserving timber harvest
97	C 41	C - Forestry	**18**		AT BG CZ DE HR HU RO SI	Artificial recruitment techniques
83	C 27	C - Forestry	**13**		AT DE HR HU RO SI	Adaptive forest management under climate change
108	D 9	D - Water Management	**53**	AT BG DE RO	CZ HR HU SI	Flood Risks Management Plans
107	D 8	D - Water Management	**51**	AT BG DE RO	CZ HR SI	Hazard and flood risks maps

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106	D 7	D - Water Management	**27**	DE HR	CZ SI	Economic measures addressing water scarcity and drought
119	D 20	D - Water Management	**27**	DE RO	CZ SI	Revitalisation of surface drains, slurry pits
101	D 2	D - Water Management	**22**	BG	CZ DE HU RO SI	Protection of floodplains
117	D 18	D - Water Management	**16**		AT CZ DE HR HU RO SI	Green infrastructure methods of watercourses regulation
109	D 10	D - Water Management	**13**		AT BG CZ DE RO SI	Public information and education
113	D 14	D - Water Management	**13**		AT BG DE HR HU SI	Removal, prevention and monitoring of invasive plants along rivers and streams
124	E 1	E - Spatial Planning	**20**	DE	CZ HR RO SI	Ecological structures within the landscape
128	E 5	E - Spatial Planning	**11**		DE HR HU RO SI	Land use coordination in river catchments by inter-municipal cooperation
134	F 3	F - TM Agriculture	**11**		AT BG CZ DE SI	Sediment trapping reservoir
136	F 5	F - TM Agriculture	**9**		AT DE RO SI	Sediment control dams
139	F 8	F - TM Agriculture	**9**		AT DE HR SI	Terraces
138	F 7	F - TM Agriculture	**4**		RO SI	Infiltrating pools
140	F 9	F - TM Agriculture	**4**		CZ SI	Grassed waterways
145	G 2	G - TM Forestry	**31**	AT HR	CZ DE HU SI	Road runoff
148	G 5	G - TM Forestry	**11**		AT BG DE HR SI	Rehabilitation and recultivation of damaged forest terrains
144	G 1	G - TM Forestry	**9**		DE HR RO SI	Retention pools
154	H 6	H - TM Water Management	**20**	HU	DE HR RO SI	Restoration of wetlands areas
149	H 1	H - TM Water Management	**18**	CZ	AT DE SI	Revitalization of streams
157	H 9	H - TM Water Management	**11**		BG CZ HR HU SI	Construction of retention volumes within the catchments
151	H 3	H - TM Water Management	**9**		CZ HR HU SI	Retention spaces within the catchment
176	I 18	I - TM Spatial Planning	**31**	BG CZ	DE HR RO SI	Reservation zones
174	I 16	I - TM Spatial Planning	**22**	CZ	BG DE HR HU SI	Land policy for flood retention and runoff
172	I 14	I - TM Spatial Planning	**20**	DE	BG HR RO SI	Integration of necessary retention works in spatial planning, e.g. when rezoning land use plans
165	I 7	I - TM Spatial Planning	**16**		AT CZ DE HR HU RO SI	Incorporating ecological elements into landscape matrix
173	I 15	I - TM Spatial Planning	**13**		AT BG CZ HR RO SI	Promote buildings adapted to (low) flood hazards
168	I 10	I - TM Spatial Planning	**7**		DE HR SI	Natural measures for water retention in urban zones

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180	J 4	J - Land Consolidation	**27**	CZ DE	HR SI	Permanent grassing
181	J 5	J - Land Consolidation	**24**	DE	AT CZ HR HU RO SI	Permanent afforestation
179	J 3	J - Land Consolidation	**22**	CZ	BG DE HR RO SI	Modified crop rotation
178	J 2	J - Land Consolidation	**18**	CZ	AT HR SI	Design and implementation of “common structures”
182	J 6	J - Land Consolidation	**9**		AT CZ HR SI	Readjustment of land for public projects (e.g. flood prevention, nature conservation)
188	K 5	K - SW Protection Zones	**44**	CZ DE HU	AT BG HR RO SI	Monitoring of production, import and use of chemical products
189	K 6	K - SW Protection Zones	**38**	AT BG DE	HR SI	Prohibition of irrigation of arable land with waters that do not have drinking characteristics
186	K 3	K - SW Protection Zones	**11**		CZ DE HU RO SI	Proper land use and spatial planning within the areas of interest
200	L 7	L - GW Protection Zones	**53**	AT BG CZ DE	HR HU RO SI	Prohibition of the use of chemical fertilizers in the protection zones
199	L 6	L - GW Protection Zones	**42**	AT BG CZ	DE HR RO SI	Prohibition of the use of natural and chemical fertilizers in the protection zones