Steps of a vulnerability assessment – AID TABLE

01 - RESOURCES

What resources are of importance to the community's typical sectors, residents and municipality?

Natural resource	Model question	Information
Land	Total area	hectares
	Protected area	hectares
	Arable land	hectares
Water	Drinking water resources	
	Wells	
Livestock	Number of animals Species	
Reed	Total area	
	Harvestable area	
Invasive plants	Species	Amorpha fruticosa Ambrosia elatior
	Area infested	
Forests		
Bee pastures		
Wetland habitats	Area	
Physical resources		
Road network	Asphalt roads, dirt roads	
Power grid	Cables	
Gas		
Irrigation	Are covered	
Canal network	Length: Place:	
Financial resources		
Product sold	Species Are covered	
Product sold	Species Are covered	
Product sold	Species Are covered	
Insurance contracts		
Human resources (any knowledge)		
Irrigation		
Handicrafts		
Tourism		

Reed production		
Livestock keeping		
Social resources		
Civil society organisations		E.g. civil guard, anglers' association, pensioners' club
Other organisation, federations, associations		
Institutions		
Authorities		

02 – CLIMATE CHANGES

Change in climate parameter	*Impact on agriculture*	*Impact on health*	*Impact on infrastructure*	*Impact on wildlife*
1. Slow increase in average ambient air temperature	More frequent irrigation is required.	Irritation, blood pressure problems.	Increased power consumption of A/C equipment in summer.	Invasive spread of species from warmer climate e.g. Arion vulgaris
2. Increase in number of summer days (daily max. > 25 °C)				
3. Decrease in frosty days (daily min. < 0 °C)	Proliferation of agricultural pests.	More frequent and more persistent respiratory tract diseases.	Reduced natural gas consumption.	
4. Increase in number of hot days (daily max. ≥ 30 °C)				
5. Increase in number of tropical nights (daily min. ≥ 20 °C)				
6. Increase in number of days of heat waves (daily average temperature > 25 °C)	Major drought damage.	Irritation, blood pressure problems.	Increased power consumption of A/C equipment, increased water consumption, in summer.	Decreasing daytime animal activity, herbaceous plants burn out in many places.
7. Increase in average daily temperature fluctuation (difference	Deteriorating condition of field	Load on human body.		Load on animals and plants.

between daily max. and min., °C)	crops.			
8. Decrease in annual precipitation	More frequent irrigation is required.			Life conditions of wetland habitat species deteriorate.
9. Decrease in number of days of precipitation (daily precipitation ≥ 1 mm, %)				
10. Increase in average daily precipitation (average precipitation of days of precipitation, mm/day)	Increasing frequency of fungal diseases of fruit trees.		Rainwater drainage system capacity not always sufficient.	
11. Increase in length of max. dry period (longest period with daily precipitation < 1 mm, day)				
12. Change in length of max. wet period (longest period with daily precipitation ≥ 1 mm, day)	Build-up of inland excess water.		Rainwater drainage system capacity not always sufficient.	
13. Increase in number of days of at least 20 mm precipitation (number of days when the total daily precipitation is ≥ 20 mm, day)				
14. Slow increase in average surface water temperature				
15. Change in distribution of precipitation across the seasons	Higher production costs, more difficult planning.			No regular early summer high water level; reproduction of fish not successful every year.
16. Increased UV radiation, reduced cloud forming	Condition of agricultural plant species deteriorates.	Staying in sunshine entails health risks.	Increased energy consumption, structures damaged by UV radiation.	Decreasing daytime animal activity, herbaceous plants burn out in many places.
17. Increase in number and intensity of rainstorm (stormy weather) events	Damage to certain crops (maize, sunflower).		Power failures.	Damage to woody plant species.
18. Increased frequency and				

intensity of flash floods				
19. Increased frequency and intensity of flood waves				
20. Increased frequency of inland excess water build-up	Damage to crops, unpredictability of production.		Increased energy consumption due to use of pumps.	Appearance of certain species (e.g. Vanellus vanellus) where extensive inland excess water accumulates.
21. Decrease in water resources (decrease in amount of water in watercourses during periods of low water in summer, increasing frequency of low water levels in ponds and lakes, decrease in groundwater reservoirs)	Increase in the required frequency of irrigation.		Drinking water reservoirs decrease, increased difficulty of water extraction.	Deterioration of conditions of life for aquatic wildlife.
22. Increased frequency of droughts.	Major drought damage.	People cannot rest properly, so they are exhausted and tired.	Increased power consumption of A/C equipment, increased water consumption, in summer.	Decreasing daytime animal activity, herbaceous plants burn out in many places.
23. Increased frequency of mass movements.			Increased energy consumption	
24. Increased frequency of forest fires				
25. Wind erosion	Loss of fertile soil.			

03 – CLIMATE RISKS

Risks stemming from climate	Prevailing risk level	Expected change in intensity	Expected change in frequency	Indicator (for example)
Extreme snow	high/medium/low	high/medium/low	high/medium/low	frequency, length, number of days
Extreme cold	low	low	low	number of days, number of frosty days, number of days of snow-cover
Extreme precipitation	high	low	low	expected change in heavy precipitation, trend of distribution of precipitation
Flood	medium	medium	low	risk, expected change
Dry spell	medium	medium	low	risk, expected change
Inland excess water	high	low	low	risk, expected change
Storms	high	low	low	lightning, high wind, heavy precipitation
Landslide, mudflow	low	low	low	
Forest fires				
Other				

04 – EXPOSURE

The following table sums up the exposures. Sum up the exposures that are characteristic of your town/village.

If there is any exposure indicator that is not listed here, complement the table.

Exposure	not characteristic	more uncharacteristic	more characteristic	very characteristic	irrelevant
Length of unbroken periods of hot days has increased in recent years				X	
Floods of small watercourses have become more frequent in recent years			X		
Inland excess water builds up more frequently in recent years.			X		
Increased areas (including new areas) have been affected by inland excess water in recent years.				X	
The size of the cultivated agricultural land has decreased in recent years.		X			
The rainwater drainage canal has not been able to cope with the amount of water on multiple occasions in recent years.			X		
Floods have damaged road pavements in recent years.			X		
Damage by lightning/storm have occurred in recent years.				X	
Snowing, snow cover, has increased in recent years in the town/village.			X		
Snowing, snow cover, has decreased in recent years in the town/village.	X				
Winters have been rainy in recent years.			X		
Winters have been mild in recent years.		X			
Winters have been rainy/snowy in recent years.			X		
Winters have been mild and dry in recent years.		X			
Winters have been frosty in recent years.			X		
Long hot and dry periods (of multiple days) have increased in frequency in recent years.			X		
Heavy rains have increased in frequency in recent years.				X	
Cellars have been inundated by groundwater more frequently in recent years.				X	
The groundwater level has dropped in dug wells in recent years.			X		
Groundwater has been disappearing from wells in recent years.		X			
Water has been disappearing from canals outside the town/village for longer and longer periods in recent years.			X		

Wetland habitats (ponds, lakes, oxbow lakes) dry out for longer and longer periods in recent years.			X		
Sediment carried by precipitation appears more and more frequently and intensively in recent years.			X		
If sediment carried by precipitation appears more and more frequently and intensively, that sediment comes from unpaved surfaces of the town/village.		X			
If sediment carried by precipitation appears more and more frequently and intensively, that sediment comes from outside the town/village.			X		
If there are small watercourses in the village/town, the frequency of floods has increased in recent years.			X		
If floods of small watercourses have been increasing; have they been typically caused by heavy rains falling in the area of the town or village?				X	
If floods of small watercourses have been increasing; have they been occurring even if no heavy rains have typically been falling in the town or village?		X			

05 – SENSITIVENESS

The following table sums up sensitiveness. If the place of the sensitiveness and the sensitive sector or group can be clearly identified, describe it in brief. Delete sensitiveness types that are not experienced in your town or village. If there are other sensitiveness types, add them to the table.

Sensitiveness	not characteristic	more uncharacteristic	more characteristic	very characteristic	irrelevant	Who are sensitive (group, sector)?	Where can the stakeholders be found?
The ratio of patients with chronic illnesses has changed (more obese people, people with diabetes, mental illnesses etc.)			X			elderly people	among the residents of the town or village
Heavy rains regularly inundate inner areas of the town or village.				X		primarily residents with cellars	in inner area, among residents
Heavy rains usually result in inundations in the same areas.			X				
Inland excess water affects only specific parts of the area where there are important roads and/or facilities.				X			
The inland excess water covers typically gardens.			X				
Inland excess water covers the area usually for 1 week.				X			
Inland excess water covers the area usually for 1 month.		X					
Inland excess water is present sometimes for months.							
The areas inundated after heavy rains are, for the most part, watertight paved surfaces.							
In the areas inundated after heavy rains residents collect and utilise rainwater from roofs.							
There is a canal or ditch in the areas inundated after heavy rains.							
There is a canal or ditch in the areas inundated after heavy rains but it is not connected to others, it is not part of a system.							
There is a canal or ditch in the areas inundated after heavy rains, it is part of a system, but the culverts under driveways are usually blocked or of a small diameter.							

There is a canal or ditch in the areas inundated after heavy rains, but it is not regularly cleaned (the vegetation is not mowed either).							
Heavy rains regularly inundate areas outside the town or village.							
There is a canal or ditch in the areas inundated after heavy rains, outside the village or town, but it is not regularly cleaned (the vegetation is not mowed either).							
There is a rainwater drainage canal network town or village (not only in the parts often inundated).							
Only ditches sufficient to hold only part of the run-off, not connected to each other, are to be found in the village/town (and not only in the most frequently inundated areas).							
Irrigation is often required in the summer.							
Irrigation is often required in the summer. Water from wells is used for this.							
Irrigation is often required in the summer. Water from the drinking water supply system is used for this.							
Nearly every property has its own well.							
Most of the properties have their own wells.							
Not many properties have well.							
Property owners' own wells are, for the most part, dug wells, of a depth of							
Property owners' own wells are, for the most part, drilled wells, of a depth of							
Is the soil of the town or village suitable for infiltration (not loess, not clay; if the town or village is located in a hilly area, are the slopes							

not prone to sliding)?							
The age structure of the population of the town or village has changed (young people have moved).							
A home for the elderly has been established in recent years.							
An institution for people with disabilities has been established							
The number of aid recipients has increased.							
The number of households applying for 'social firewood allocation' has increased.							
Are there any water consuming farmers/businesses.							
Are there any farmers/businesses consuming surface waters.							
Are there any farmers/businesses consuming groundwater.							
Are there any farmers/businesses having water rights permits.							
Are there any farmers/businesses extracting water for themselves.							
Are there any farmers/businesses using water supplied by a service provider.							
Are there any farmers/businesses supplying water. Purified water							
Are there any farmers/businesses supplying water. Unpurified water.							
The scarcity of drinking water impedes its activity (e.g. livestock keeping).							
It is prevented from doing anything by the lack of wastewater drainage.							

Impeded by scarcity of precipitation.							
Impeded by low groundwater level.							
Impeded by inland excess water inundation.							
Impeded by scarcity of water for irrigation.							
Groups/lines of trees in inland area are, for the most part, trees requiring/evaporating lots of water.							
Plant species requiring a lot of water are produced in the area.							
There is a line of trees in every street/road in the inner area.							
There are no lines of trees along certain streets in the inner area.							
The banks of watercourses and the shores of ponds in the inner area are built up or solid surfaces.							
The solid inner area surfaces are made of watertight (not water permeable) materials.							
There are built-up areas in the floodplains and floodways.							

06 – IMPACTS

The following table sums up impacts that have already occurred town or village and been identified (damage caused). The impacts are to be evaluated in brief in terms of how typical they have been, when and where they occurred, what damage was caused and who was affected.

The impacts listed hereunder are only examples. They may be modified, deleted or supplemented, as appropriate. Impacts not identified town or village should be deleted.

Impacts	not characteristic	more uncharacteristic	more characteristic	very characteristic	irrelevant	When?	Location of occurrence. Marked in map as well.	Amount concerned.	Sectors involved.
Number of doctors' visits, ambulance calls, deaths, increased as a consequence of heat waves.				X		about from June until September	in the town or village, particularly in households with elderly people	about 150%, i.e. one and a half times as many people called/visited the doctor	health, social services (for the elderly)
Number of skin-burn events, skin cancers, increased as a consequence of UV radiation									
Food poisoning incidents occurred during the hot summer period (e.g. in communities)									
The number of cases patients saw the doctor because of allergic symptoms; the sale of non-description anti-allergic drugs has increased									
There are more patients with allergic symptoms									

New diseases not experienced before have occurred (e.g. diseases spread by insects or rodents)									
The number of Lyme disease patients has increased									
Cases of encephalitis spread by ticks have occurred									
West Nile fever has occurred									
People injured because of floods									
Damage/loss of property, evacuation caused by floods									
Damage to infrastructure (e.g bridges) by flash floods.									
Damage by storm has caused injuries to people									
Damage to property by storms (e.g. power supply)									
Has any burial service been complicated by inland excess water									
Inland excess water has caused damage to property, evacuation was necessary.									
Cellars/garages inundated frequently									
Inundations are associated with heavy rains or rather with seasons in terms of occurrence and degree									

If groundwater level has dropped in dug wells in recent years, where has it taken place?									
If groundwater level has dropped in dug wells in recent years, did it occur all year round or during certain periods?									
Has any substantial damage been caused to agricultural yields by hail?									
Has any substantial damage been caused to agricultural yields by frost?									
Has any substantial damage been caused to agricultural yields by drought?									
Has any substantial damage been caused to agricultural yields by inundation?									
Have invasive species been spreading noticeably?									
Excess precipitation is causing damage to farming structures.									
Shortage of precipitation is causing damage to farming structures.									
Damage to forest stands, tree plantations, trees felled by wind, boughs broken.									

Was the drinking water resource contaminated (e.g. because of inundation or damage by storm)?									

07 – RISKS

Estimate on the basis of the identified impacts the impacts whose degree and likelihood of occurrence is expected to be higher in the future. The numbers below are examples, they can be substituted as appropriate. The descriptions of the identified impacts can be modified, only the text is to be altered in the various fields. The number of impacts can be increased by inserting new rows at the end of the list. Upon entering the identified impacts and filling in the relevant probability and impact values the IDs appear in the matrix automatically in the relevant places.

ID	Identified impacts	Severity of impacts from climate change (0 - not relevant; 1 - low; 10 great)	Probability of occurrence (0 - not relevant; 1 - low; 10 great)
1.	Number of doctors' visits, ambulance calls, deaths, increased as a consequence of heat waves.	4	9
2.	Number of skin-burn events, skin cancers, increased as a consequence of UV radiation	9	8
3.	Food poisoning incidents occurred during the hot summer period (e.g. in communities)	5	7
4.	The number of cases patients saw the doctor because of allergic symptoms; the sale of non-description anti-allergic drugs has increased	1	5
5.	There are more patients with allergic symptoms	3	4
6.	New diseases not experienced before have occurred (e.g. diseases spread by insects or rodents)	5	2
7.	The number of Lyme disease patients has increased	4	4
8.	Cases of encephalitis spread by ticks have occurred	3	2
9.	West Nile fever has occurred	1	1
10.	People injured because of floods	4	3
11.	Damage/loss of property, evacuation caused by floods	4	6
12.	Damage to infrastructure (e.g bridges) by flash floods.	2	2
13.	Damage by storm has caused injuries to people	7	5
14.	Damage to property by storms (e.g. power supply)	3	6

15.	Has any burial service been complicated by inland excess water	2	3
16.	Inland excess water has caused damage to property, evacuation was necessary.	4	2
17.	Cellars/garages inundated frequently	6	5
18.	Groundwater dropping in dug wells.	8	5
19.	Substantial damage has been caused to agricultural yields by hail	6	1
20.	Substantial damage has been caused to agricultural yields by frost	6	3
21.	Substantial damage has been caused to agricultural yields by drought	8	6
22.	Substantial damage has been caused to agricultural yields by inundation	9	9
23.	Have invasive species have been spreading noticeably	7	10
24.	Excess precipitation is causing damage to farming structures.	6	2
25.	Shortage of precipitation is causing damage to farming structures.	7	3
26.	Damage to forest stands, tree plantations, trees felled by wind, boughs broken.	7	1
27.	Was the drinking water resource contaminated (e.g. because of inundation or damage by storm)?	8	1

08 – SECTORS

The impacts on the various sectors are evaluated in the following table according to the underling climate phenomenon. Only those cells should be filled out of course in which the impacts make sense, i.e. there is identifiable climate-induced impact in the given sector.

Sectors to be examined	Flood/flash flood impact	Drought impact	Heat wave day impact	Inland excess water impact	Storm impact
Health			Since the number of days of heat waves has increased, the number of deaths also increased in the town or village, particularly among elderly people.		
Agriculture					
Forestry					
Industry					
Energy supply (power, gas, fuel), production, grids, networks, district heating					
Drinking water supply					
Wastewater removal and treatment					
Rainwater management					
Waste management					
Residential buildings					
Public buildings					
Service providers' buildings					
Infrastructure – roads, railways, canals, telecommunication	Sudden heavy rain caused major damage to roads (worth approx.				

	HUF 10 million).				
Green areas, biodiversity					
Tourism					

09 – EVALUATION OF IMPACTS

The impacts identified in the sectors most affected by climate change are summed up in the following tables.
Select the likelihood and the degree of the impact from the drop-down menu. Then enter the indicator on the basis of which the impact can be measured.
Thereafter, enter a brief description of the area in which the impact has been identified, as identified in the topographic map or the orthophoto.
Thereafter, enter brief description of who the impacts affected (who suffered damage).
Then enter a brief description of the recommended adaptation measures to avoid damage.

Sectors concerned	Impacts	Probability of occurrence	Extent of impact	Indicator	Place of occurrence Marked in map as well	Stakeholders	Possible adaptation measures
Health	e.g. $west Nile fever has occurred	Low	Medium	Number of cases			
Agriculture	e.g.. Material damage to yield in orchards	High	High	Hectares affected			
Forestry	pl. Major forest fire	Medium	High	Hectares affected	Primarily homogeneous plantations in the area of Tln. abcd	residents, forester, neighbouring farmers, forest wildlife (fauna and flora).	placing notice boards warning of risk of forest fire, near the forest.
Industry							
Energy supply (power, gas, fuel), production, grids, networks, district heating	e.g. cables torn by ice build-up	Low	Medium	Buildings affected by power failure			
Drinking water supply	e.g. contamination of drinking water	Medium	High				

	resources during floods						
Wastewater removal and treatment							
Rainwater management	e.g. areas inundated after extreme rainfall	Low	Low	Area of inundated part of the town or village	TLN abcd		
Waste management							
Residential buildings							
Public buildings							
Service providers' buildings							
Infrastructure – roads, railways, canals, telecommunication							
Green areas, biodiversity							
Tourism							

10 – ADAPTABILITY

The following table shows questions and statements that help assess existing adaptability.

In the first step estimate whether the given question or statement is of relevance and typical in your town or village, then, list the sectors or groups to which they apply as well as how they mitigate vulnerability.

Adaptability	not characteristic	more uncharacteristic	more characteristic	very characteristic	irrelevant	For which sector or group do they alleviate vulnerability?	In what way do they alleviate vulnerability?
Does the municipality have a plan for heat waves							
Do the nurseries/schools have plans for heat waves							
Do the nurseries/schools have and apply							

plans for heat waves							
Do doctors' offices have and apply plans for heat waves							
Do doctors' offices have plans for heat waves							
Do institutions taking care of the elderly/those in need have plans for heat waves							
Do institutions taking care of the elderly/those in need have and apply plans for heat waves							
Are residents informed in the case of extreme heat/UV alarm (in public areas, public institutions, on posters)							
Are there sunscreens in public areas (bus stops)			X			health	Sunscreens (roofs, trees) are highly useful in hot weather, primarily in the summer, in bus etc. stops. Providing shaded areas reduces the number of people feeling sick because of the heat.
Any special actions taken? (distribution of water, operation of public drinking water fountains)							
Are actions taken on beaches (provision of information on the UV radiation, restriction of boat rental, extended opening hours)							
Are any regulations applied to local working regime (start of working hours,							

siesta)							
Is there an alarm/emergency call number for the elderly, those living in homesteads?							
Are there clubs for the elderly, for specific patients?							
Are there local civil society organisations, church communities to help elderly people in need?							
Are presentations delivered for the elderly on the impacts of heat waves, and on the prevention of such impacts?							
Does the town or village have connections with climate-friendly towns and villages?							
Do they know good practices?							
Are there regular mosquito control interventions?							
Is information provided on innovative adaptation possibilities?							
Does the town or village have any plan for tree planting (for planting lines of trees, shelterbelts or non-allergenic trees)?							
Does the town or village have an action plan for protection against inland excess water or a flood?							
It can reduce its water consumption							
It can hold water in its area							
It can reuse used water							
Drought tolerant plants can be planted							
Can it protect against evaporation?							

Is there any intent to apply community solution for water-related problems?							
Is it willing to pay for water safety?							
Does the town or village have a strategy for storing excess water (surface waters) from wet periods and returning the excess during a period of little precipitation?							
Are there civil society organisations town or village to take care or potentially take care of climate change impacts?							
Do farmers take their own weather measurements and observations?							
Are there shading roofs at places where people have to wait in the inner area?							
Are there sunscreens over swimming pools?							
Does anyone at the municipality's own institutions make or take observations and readings?							
Green roof solutions have been applied on public buildings							
The regulation plan specifies the minimum green surface ratio for all building lots. Which is xy%							
There is three-tier vegetation in the public areas of the town or village.							

11 – ADAPTATION POSSIBILITIES

The possible adaptation measures are evaluated in the following table. The measures described in the table are only examples. We describe the measure and then identify the sectors (e.g. health, agriculture etc.) or groups (e.g. elderly, children, public employees etc.) whose adaptation they help. We provide a brief description of the place of the intervention, showing it in topographic map or orthophoto as well. We present a brief assessment of the feasibility of the measure (e.g. it is feasible because the area is accessible, its ownership is known or it is not possible because the owner won't consent). Thereafter we briefly describe whether the measure can be financed, e.g. from some operational programme or own budget, or if it does not require any major funding input. Thereafter we estimate the degree of local support (e.g. residents would certainly support it, farmers and businesses would certainly not support it). If there already is an idea as to which participants would support it, the potential supporters should be listed in the last column.

Possible adaptation measures	Sectors/groups concerned	Intended place of operation	Feasibility	Financeability	Local support	Possible supporters
New natural resource management (e.g. water retention, control of invasive plants)	agriculture, water management, total population, farmers, local water management sector	unused clay pit outside the town or village (it may be suitable for water retention and recreational purposes)	possible because the area concerned is owned by the municipality	a small-scale low-cost water retention solution, it requires no major funding input, doable with local resources and materials, with the municipality's budget	high, local residents would support it	local residents, farmers, local water management authority
Refurbishment of buildings (better shading)						
Data collection, local research (e.g. condition and operation of sewage/canal networks)						
Drawing attention/Awareness raising						
Municipal development (construction regulations)						
Own energy generation						

Planting forests, hedges (steep slopes, shelter belts)						
Training of civil society organisations, their involvement in forecasting						
Joint international application with twin towns/villages						
Market research regarding drought tolerant vegetation						
Creating public bicycle network						
Creating website for two-way communication						
Regular information in local media before heat waves						
Ensuring local protection of areas suitable for water retention						