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A.2.1 Managing humid and semi-humid ecosystems**

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(HKH*screening*)**

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PU	Public	✓
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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INSTALLATION AND FIRST RUN

- Installation of the HKHscreening starts by running the setup.exe.
- The setup is installing the program to a folder of your choice and automatically creates two subfolders, one for the databases, one for pictures.
- Start the HKHscreening.
- Login (see below).
- Select the menu **Extras** and subsequently the submenu **Options**.
- The program automatically sets the paths to the databases.
- Press **Connect** and a progress-bar shows that the program is connecting to its databases.
- Close the program and restart it again.

***Note:** You cannot change the country after the first start. To change the country the program must be installed again.*

LOGIN

For login enter 'assess' in the field 'User' and 'hkh' in the field 'Password'.
The login-password cannot be changed in the current program-version.

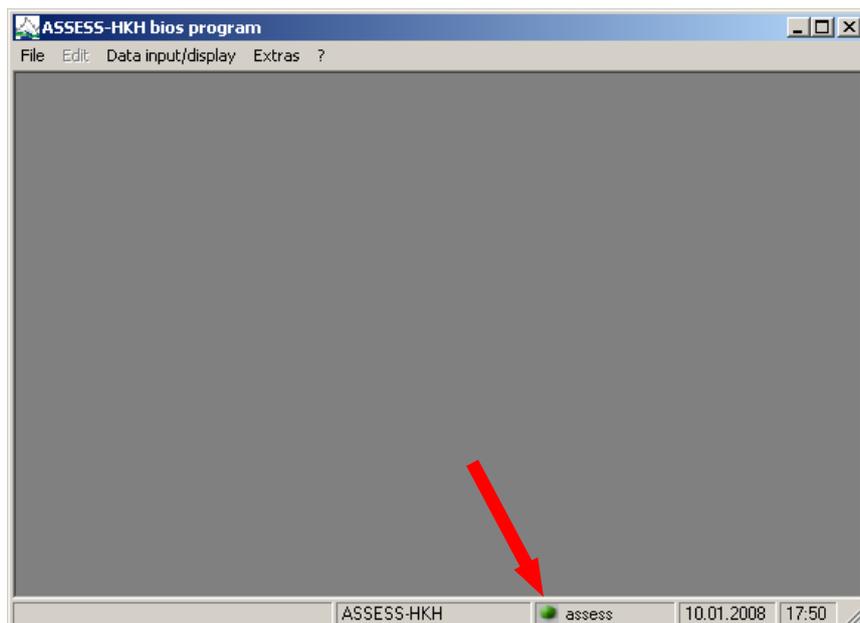
GENERAL COMMENTS / ERRORS

The status bar shows the current user name and a red/green light.

Red light in the status bar: no connection to the database was established during the start of the program for the following reasons:

- wrong or missing entries for the directories of the database; changes are possible in the **Extras/Options** menu
- incorrect login (user name and/or password)

Green light: connection with database was successful.



BACKUP OF YOUR DATA

It is recommended to make backups of your data on a regular base. The data you have entered into HKHscreening are stored in the subfolder '*installation directory*\database'. There are 5 files with the extension '*.mdb' that you should backup (with the exception of 'ep_db.mdb', which **does not** contain any user entered data).

MAIN MENU

The main program menu bar contains the following menus:

- File
- Data input/display
- Extras
- ?

File menu

Printer optionsoptions for the standard printer

Exitends the HKHscreening

Data input/display menu

HKHscreeningopens the window for HKHscreening data input and calculation

Extras menu

Optionsopens the window for setting program options

Backupopens the window for backup of your data

? menu

Use helpopens a window for help information

Infoinformation about the program

METHOD

The scientific fundamentals of **HKHscreening** are laid down in Deliverable 10 – 'ASSESS-HKH Methodology Manual describing fundamentals & application of three approaches to evaluate the river quality based on benthic invertebrates: HKH screening, HKH score bioassessment & HKH multimetric bioassessment'.

DATA INPUT AND HKHscreening CALCULATION

After starting the HKHscreening software the 'HKHscreening' window is opened.

The input of HKHscreening data is based on the Screening Protocol for assessing the river quality of streams in the ASSESS-HKH region that was completed during sampling in the field.

Entering general data

At the top of the window an ecoregion can be chosen from the selection list. River name, site name, sample date, sampling time and sample name have to be entered in the respective fields.

Entering ecological features and HKHscreening result

Data input takes place in the column that is marked in orange colour:

- select one parameter and choose the appropriate answer from the selection list, which opens when you click into the orange column
- the scores for the different river quality classes will fill automatically when you leave the active cell or press the 'Enter'-key
- all the number entries will be summed up **automatically** and the **river quality class** with the highest number will be **highlighted** in **dark orange**

***Note:** Only fill those parameters where the criterion exists without any doubt!!!!*

Entering taxa recorded in the field

In the lower end of the window two headlines for the input of macro-invertebrate taxa are available. If you tick the checkbox left of the headline, then a taxalist will open, comprising the taxa of the particular region.

- Taxa (all ecoregions except Gangetic Plains): use this list if you want to fill the HKHscreening taxa for ecoregions **other than the Gangetic Plains**
- Taxa (ecoregion Gangetic Planes only!): use this list if you want to fill the HKHscreening taxa for the ecoregion **Gangetic Plains**

Note: The sixth river quality class (black colour) that was added to the HKHscreening field protocol for rivers (sections) with no higher life cannot be entered into HKHscreening. In case you have ticked parameters of the sixth river quality class in your decision support table in the field (e.g. species richness, chironomids with red colour or air-breathing animals) choose the according parameter in the selection list of the fifth river quality class.

sample input
- □ ×

Ecoregion	Eastern Himalayan Broadleaf Forests (IM0401)	River name	Cheri Chhu
Site name	Cheri Lhakhang	Sampling date	23.11.2005
Sample name	H03TC013	Sampling time	09:45:00

Decision support table	Exists without doubt	River quality class				
		I	II	III	IV	V
Sensory features (if not in accordance with natural river type)						
Non natural turbidity, suspended solids						
Non natural colour						
Foam						
Odour (water)						
Waste dumping						
Ferro-sulphide reduction (water velocity < 0,25 m/s)	no		1			
Mud reduced but with aerobic surface						
Mud reduced but with anaerobic surface						
Lower surface of stones (% cover black dots)						
Upper & lower surfaces of stones						
Ferro-sulphide reduction (water velocity 0,25-0,75 m/s)	no		1	1		
Mud reduced but with aerobic surface						
Mud reduced but with anaerobic surface						
Lower surface of stones (% cover black dots)						
Upper & lower surfaces of stones						
Ferro-sulphide reduction (water velocity > 0,75 m/s)						
Lower surface of stones (% cover black dots)						
Upper & lower surfaces of stones						
Bacteria, fungi, periphyton						
Sewage fungi & bacteria (visible to the naked eyes)						
Sulphur bacteria (visible to the naked eyes)						
Stones with algal vegetation (periphyton) in thin layers	yes		2	2		
% of thick, significant layers of algae	< 25 %		2			2
Filamentous green algae	none to few		2			

Load sample	Clipboard	Delete	Save	Close
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sample input
[-] [] [X]

Ecoregion

Site name

Sample name

River name

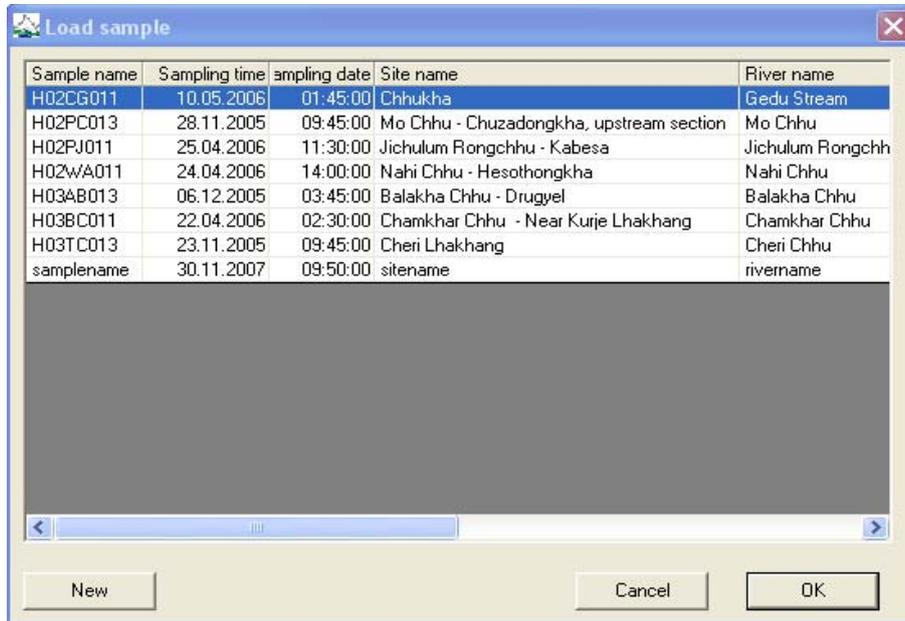
Sampling date Sampling time

Decision support table	Exists without doubt	River quality class				
		I	II	III	IV	V
Benthic macro-invertebrates						
Species richness	high	2	2			
Dominance of very sensitive organisms (9 to 10)						
Dominance of sensitive organisms (6 to 8)	yes	1	3	1		
Dominance of medium tolerant organisms (4 to 6)						
Dominance of tolerant organisms (3 to 4)						
Dominance of extremely tolerant organisms (1 to 2)						
<input checked="" type="checkbox"/> Taxa (all ecoregions except Gangetic Plains)						
Rhithrogena spp.						
Perlidae	yes	2	1			
Plecoptera	yes	2	1			
Euphaeidae						
Stenopsyche spp.	yes	2	1	1		
Rhyacophilidae	yes	3	2	1		
Caenis spp.						
Heptageniidae	yes	2	2	1		
Psephenidae	yes	2	3	1		
Glossosomatidae						
Sphaeriidae						
Simuliidae	yes	1	2	2		
Psychomyiidae	yes	1	3	2		
Tabanidae						
Potamidae						
Libellulidae/Corduliidae						
Hydropsychidae (medium to many)						
Planorbidae						
Lymnaeidae						
Physa spp.						
Leeches (more than naturally occurring)						
Chironomids with red colour						
Bezzia-group						
Psychodidae (white)						
Air-breathing animals, e.g. rat-tail maggots						
Oligochaeta/Tubificidae (mud-worms)						
<input type="checkbox"/> Taxa (ecoregion Gangetic Plains only!)						
Result - Sum of columns		26	23	9	0	2

Load sample
Clipboard
Delete
Save
Close

Options

- If you want to **load** a previously entered HKHscreening sample, press the 'Load sample'-button. In the 'Load sample' window you can choose a sample from the selection list.



If you want to enter a new HKHscreening sample, press the 'New'-button.

- If you want to **copy** the HKHscreening data of this sample into another Windows software (e.g. MS Word or MS Excel), press the 'Clipboard'-button, open the other software and choose 'insert' from the right-mouse-button-menu; the sample data, the HKHscreening data and the HKHscreening result will be copied.
- If you want to **delete** an already entered **entry**, choose the empty entry in the orange column.
- If you want to **delete** the complete HKHscreening data of this sample, press the 'Delete'-button.
- If you want to **save** the HKHscreening data of this sample, press the 'Save'-button.
- If you want to **close** the 'HKHscreening' window, press the 'Close'-button.

Comments on some individual parameters

- parameter '% of thick, significant layers of algae': if you have ticked 'few' in your decision support table in the field, please choose '<25 %' in the selection list
- parameter 'Filamentous green algae': if you have ticked 'filaments, tufts' in your decision support table in the field, please choose either 'filaments' or 'tufts' in the selection list according to your observations in the field
- parameter 'Species richness': if you have ticked 'medium/high' in your decision support table in the field, please choose either 'medium' or 'high' in the selection list according to your observations in the field; if you have ticked 'none' in the sixth river quality class column in your decision support table in the field, please choose 'none' in the selection list of the fifth river quality class column
- parameter 'Tubificidae (mud-worms)': if you have ticked 'few/medium' in your decision support table in the field, please choose either 'few' or 'medium' in the selection list according to your observations in the field; if you have ticked 'medium/many' in your decision support table in the field, please choose either 'medium' or 'many' in the selection list according to your observations in the field; if you have ticked 'none' in the sixth river quality class column in your decision support table in the field, please choose 'none' in the selection list of the fifth river quality class column
- parameter 'Chironomids with red colour': if you have ticked 'none' in the sixth river quality class column in your decision support table in the field, please choose 'none' in the selection list of the fifth river quality class column

Note: *If you are not sure regarding the different ecological features please also consult your photos of the respective sites!*

HELP-HOTLINES

- For technical problems please contact ROBERT VOGL (irv@irv-software.at).
- For all other problems please contact ANNE HARTMANN (anne.hartmann@boku.ac.at) and OTTO MOOG (otto.moog@boku.ac.at).