Project no. INCO-CT-2005-003659

Project acronym: ASSESS-HKH

Project title: Development of an Assessment System to Evaluate the Ecological Status of Rivers in the Hindu Kush-Himalayan Region

Instrument: Specific targeted research or innovation project

Thematic Priority: Specific measures in support of international co-operation; A.2.1 Managing humid and semi-humid ecosystems

Deliverable No. 14.2
Manual for the ASSESS-HKH calculation module – Screening (HKHscreening)

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Masaryk University, Brno, Czech Republic

Revision [Final]

<table>
<thead>
<tr>
<th>Dissemination Level</th>
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<tr>
<td>Public</td>
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<td>PP</td>
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<td>RE</td>
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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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CONTENT

INSTALLATION AND FIRST RUN ................................................................. 4
LOGIN .............................................................................................................. 4
GENERAL COMMENTS / ERRORS............................................................. 4
BACKUP OF YOUR DATA ........................................................................... 5
MAIN MENU ................................................................................................. 6
  FILE MENU ................................................................................................ 6
  DATA INPUT/DISPLAY MENU ................................................................. 6
  EXTRAS MENU ....................................................................................... 6
  ? MENU .................................................................................................. 6
METHOD ...................................................................................................... 7
DATA INPUT AND HKHSCREENING CALCULATION ...................................... 7
  ENTERING GENERAL DATA ................................................................. 7
  ENTERING ECOLOGICAL FEATURES AND HKHSCREENING RESULT ............... 7
  ENTERING TAXA RECORDED IN THE FIELD ........................................... 7
  OPTIONS ............................................................................................ 10
  COMMENTS ON SOME INDIVIDUAL PARAMETERS ................................. 11
HELP-HOTLINES ...................................................................................... 11
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 options ...................... options for the standard printer
- Exit ............................................ ends the HKHscreening

**Data input/display menu**

- HKHscreening ...................... opens the window for HKHscreening data input and calculation

**Extras menu**

- Options .......................... opens the window for setting program options
- Backup .............................. opens the window for backup of your data

**? menu**

- Use help .............................. opens a window for help information
- Info ..................................... information about the program
METHOD

The scientific fundamentals of HKH screening 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 HKH screening CALCULATION

After starting the HKH screening software the 'HKH screening' window is opened.

The input of HKH screening 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 HKH screening 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 HKH screening taxa for ecoregions other than the Gangetic Plains
- **Taxa (ecoregion Gangetic Plains only):** use this list if you want to fill the HKH screening 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.
<table>
<thead>
<tr>
<th>Taxa (all ecoregions except Gangetic Plains)</th>
<th>Exists without</th>
<th>River quality class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panaeidae</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Plecoptera</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Ephemeroidea</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Heptagenida</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Baetidae</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Gomphidae</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Simulidae</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Psychomyiida</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Tabanidae</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Nematoda</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Libellulidae/Coenagrionida</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Hydropsychidae/tanytarsidoides</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Planidae</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Lepidoptera</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Phylophaga/Coenagrionida</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Copepoda</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Arrhenurus arctiospinalis</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Gammaceratidiae</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Result - Sum of columns</td>
<td>26</td>
</tr>
</tbody>
</table>
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.

![Image of Load sample window]

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).