Adaptation tool for small municipalities in Bavaria (“Climate Check”) – Manual for transnational transfer

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1 About the document

This report is a manual for the transnational transfer of the adaptation tool for small municipalities in Bavaria ("Climate Check"), which was developed by the Munich University of Applied Sciences (HM) on behalf of the Bavarian State Ministry of the Environment and Consumer Protection (StMUV) in the frame of pilot activities (WP 7) in the project C3-Alps.

The report thus corresponds to action 7.3 as it is the information base for transnational implementation of the tool. It was preceded by a workshop in the context of the 7th Partner Meeting in Klagenfurt (September 2014), which specifically dealt with the transnational use of the tool. During the workshop HM informed about the tool, demonstrated a prototype and discussed with the project partners their interests, needs and requirements regarding a transnational preparation of the Bavarian tool. The workshop ended with the decision that the Bavarian tool (available in German language) will be provided to the partnership and whoever is interested, together with a manual explaining to the user:

- The general content, structure and functionality of the tool
- How to adopt the tool as regards content (clarifying what can be adopted, what needs to be modified)
- How to adopt the tool as regards technical implementation

The result is this manual, which shall facilitate the transnational transfer of the Bavarian adaptation tool to municipalities in other regions and countries.
2 Manual for the transnational transfer of the Bavarian adaptation tool

2.1 Context and background of the tool in Bavaria

In Bavaria the framework document for climate change adaptation is the Bavarian Climate Adaptation Strategy (BayKLAS). However, this document is rather general in its findings and recommendations and does therefore not serve the needs of small municipalities although they are addressed directly. Due to short time, personal and financial resources small municipalities need a “translation” of this strategy so that they can integrate its benefits in their daily work. With the development of an adaptation tool for municipalities the Bavarian State Ministry for Environment and Consumer Protection (StMUV) aims at providing this translation. Therefore, the tool was elaborated in a way that fits best the needs of small Bavarian municipalities, i.e. clear structured, non-scientific information about concrete climate change adaptation measures on municipal level.

Following the aim of raising consciousness and providing easy accessible information for mayors and administrative stuff on the issue, this tool shall 1.) inform municipalities about their vulnerability to the impacts of climate change, 2.) enable them to identify and implement adaptation measures. Besides, the tool shall be transferable to other regions of the Alpine Space Programme.

To achieve these goals an interactive adaptation tool, the “Klimacheck” (“Climate Check”) was elaborated, offering a systematic approach for small municipalities to find information on climate change in Bavaria and suggesting tailor made adaptation options and implementation strategies.

Figure 1: The Climate Check - Title
2.2 Description of the tool (incl. content/ structure)

The Bavarian adaptation tool for municipalities (“Climate Check”) is an interactive PDF-Document. One goal was to create a user-friendly solution, avoiding overburdening the user with information he/she doesn’t need and focussing on basic information. Furthermore it should be tailored to suit the needs and interests of the individual users. Thus, the whole tool is designed in a way that enables the user to individually decide which contents he/she wants to go through. This is facilitated by various links and buttons, which allow arbitrarily navigating through the document. By clicking the respective buttons, the user can jump between different sections and select those contents that are relevant for him (cf. Figure 2).

Figure 2: Example navigation buttons

![Example navigation buttons](image)

The Climate Check consists of three major sections:

1. Information on climate change and its impacts in Bavaria
2. Identification of individual impacts per municipality
3. Adaptation Options

These three sections will be presented in the following.

**Section 1: Information on climate change and its impacts in Bavaria**

This chapter informs the user on the potential impacts of climate change in Bavaria. In order not to overburden the users with highly scientific information, the content is kept simple only focusing on the major changes.

At first, changes in temperature and precipitation in summer and winter and the increase of extreme weather events are depicted.
Building on these basic changes the relevant impacts and challenges for municipalities in Bavaria are described. The impacts considered as relevant in Bavaria are: heat, drought, heavy rainfall, floods, storm events, increase of avalanche danger, rising snow line, increase of geological risks (like mudflows, landslides, rockfalls).

Besides this basic version of information, the user is offered an extended, more detailed version, which is linked to the document and can be opened by clicking on the respective button.

Moreover, reference to additional information (brochures/websites) is given and the respective documents are linked to the tool.

Figure 3: Information part of the tool

At the end of section 1, the user:

- Has gained basic knowledge on climate change and its potential impacts on municipalities in Bavaria
- Knows where to find additional information, if he wants to go more into detail
Section 2: Identification of individual impacts per municipality

Whether a region is affected by any of these impacts depends very much on its geographic location as well as on individual settings, as e.g. topography, infrastructure. These factors have to be considered to identify the relevant impacts of climate change on municipal level. This, in turn, is crucial to identify adaptation options in the next step (section 3).

Finding out which impacts might affect the user’s municipality is subject of section 2. Therefore a bunch of questions with various answering options regarding each climate change impact (as already listed above under section 1) was designed (cf. Figure 4). The user is asked to answer each question considering the individual situation in his municipality. Depending on his answers he receives feedback whether his municipality is/might be affected by the concrete impact or not, respectively to which degree it is/might be affected (low, medium or high degree).

Figure 4: Set of questions for the identification of relevant impacts
In order to keep track of the individual results, the user is provided with an additional template complementing the collection of questions, in which he should insert his results (cf. Figure 5). The user is asked to open the additional template at the beginning of the questions section by clicking on respective icons.

Figure 5: Template for the identification of affectedness

When answering each question, the user is asked to insert his result (degree of affectedness) into the template (cf. right side of Figure 5). Thus, the user gets an overview on if, or how severe the various climate change impacts might affect his municipality. The list indicates which impacts are relevant in the respective municipality and need to be tackled with high priority, medium priority or can be left out (as they are not relevant for the respective municipality).

The result of the identification of relevant impacts is the base for the next section (section 3, adaptation options) as it shows the user which topic/impact he should concentrate on first when dealing with adaptation options.

At the end of section 2, the user:
- Knows which impacts are relevant for his municipality and to which degree it might be affected
- Has a list in hands of the relevant impacts
- Knows which impacts he needs to consider with high priority as regards adaptation in the following section
Section 3: Adaptation Options

This section is the core of the adaptation tool as it shows the user concrete options for adaptation regarding the various climate change impacts. It contains collections of adaptation measures including implementation strategies for each impact identified in section 1.

In order to meet the needs of municipalities and to correspond to their organisational structures the single collections are organised following the municipal fields of action (based on legal responsibilities). After consulting respective legal bases and conducting interviews with mayors and administrative staff, for Bavaria the following municipal fields of action were identified (cf. Figure 6):

- Planning and Construction (building permission procedures/consulting, land use planning, design of townscape)
- Road Maintenance
- Public Buildings
- Public Supply and Disposal (water supply/ground water, sewerage disposal, energy)
- Fire Brigade / Civil Protection
- Water bodies (3rd order)
- Tourism → optional field of action, only relevant for municipalities with tourism as important economic pillar

Figure 6: Municipal fields of action
So, for each of the climate change impacts adaptation measures in these different municipal fields of action are presented. Section 3 starts with a main menu, containing a list of the climate change impacts and the field tourism as optional topic. Referring to the list of relevant impacts generated in section 2, the user can choose those impacts/topics that should be tackled with high priority by clicking on the respective buttons (cf. Figure 7, left side). He then jumps directly to the respective collection of adaptation options, where again he can choose between the different municipal fields of action (cf. Figure 7, right side).

Figure 7: Main menu – list of impacts/topics

The sheets of adaptation options are all structured identically. Each measure contains background information and suggestions for the implementation of the respective adaptation measure. Moreover, additional information, such as literature, brochures, practice examples and contact persons/institutions, is provided and directly linked/attached to the document (cf. Figure 8).
The collections of adaptation options are complemented by checklists (linked to the document, to be opened separately), listing all the measures per climate change impact (one checklist per climate change impact) (cf. Figure 9).

While going through the adaption options, the user is asked to tick in the respective checklists whether:
- the measure is already completely implemented in his/her municipality
- the measure is partly implemented in his/her municipality
- the measure is not at all implemented in his/her municipality.

Thus, in the end the user gets an individual overview of the status quo of adaptation in his municipality. At the same time the checklists provide hints for further adaptation options, which haven’t been considered yet.
Throughout the whole section 3 the user is enabled to navigate through the different climate change impacts as well as the municipal fields of action individually according to his needs and interests. At the beginning of the section, the climate change impacts are listed, containing links to the collections of adaptation measures. This list serves as main menu, where the user starts selecting the relevant topics and thus jumps to the respective collections of measures, which are organised in municipal fields of action (cf. Figure 7).

After each collection of adaptation measures, buttons/links are integrated, offering several navigation options, such as the possibility to get back to the main menu (overview of climate change impacts) or to the different fields of action within one impact. So, it is left up to the user to choose which parts he wants to go through (cf. Figure 10).

Figure 10: Navigation within the section adaptation options

At the end of section 3, the user:

- For each relevant climate change impact knows about adaptation options and implementation strategies in various fields of action
- Has a list in hands showing him the status quo of adaptation in his municipality by indicating which measures have already been implemented and which measures still could be performed in his municipality
- Knows where to find additional information on the implementation of single adaptation options (literature, brochures, practice examples) and to which institution/contact person to turn to in case of questions

2.3 Technical implementation and spreading of the Climate Check in Bavaria

The tool is provided as an offline solution in the form of an interactive PDF file, which was prepared with the software Adobe InDesign. This means, the complete layout of the tool was created in Adobe InDesign CS6. For the various sections of the tool templates were developed, into which the content was inserted. After final editing and setting of the navigation links, the InDesign document was converted into an interactive PDF file, which can be run on any computer.

In addition to the adaptation tool itself, an information brochure was elaborated, informing about the tool and giving step by step advice on how to use the tool (cf. Appendix 1). The adaptation tool is stored on
USB-Sticks and is sent to all small municipalities (≤ 10,000 inhabitants) in Bavaria together with the information brochure. Moreover, the Climate Check (as zip-file) will be made available for download on the website of the Bavarian State Ministry of the Environment and Consumer Protection.

2.4 Transfer of the tool

As stated in the C3-Alps application form, the tool shall be transferable to other regions and countries. In this chapter it will be explained how this transfer can be achieved and which aspects need to be considered.

HM provides for anyone who is interested:
- The finalized adaptation tool for Bavarian municipalities on USB-stick together with the information flyer (both in German language) (→ package that is sent to all small municipalities ≤ 10,000 inhabitants in Bavaria)
- Open file (Adobe InDesign) of the tool containing the whole structure → needed to modify the tool

For the transfer of the tool, the following issues need to be considered:
- Availability of software Adobe InDesign
- Modification of content (climate change impacts, municipal fields of action) according to the individual situation and legal bases of the respective country
- Translation of the content into the respective country’s language

2.4.1 Adoption / Modification of structure and content

As described above, the tool is clearly structured in the three sections 1.) Information on climate change and its impacts in Bavaria, 2.) Identification of individual impacts per municipality, and 3.) Adaptation Options. The core element of the tool, section 3.) – Adaptation Options, is again clearly organized in subchapters (climate change impacts and municipal fields of action).

This structure is ready to be adopted as it is. However, there might be some modifications necessary as regards the content, since right now it is fitting the requirements in Bavaria.

Also of course logos, pictures, and literature/further information sources need to be modified according to your requirements and the imprint adjusted accordingly.

The list below gives information on aspects that should especially be considered when transferring the tool.
# Section 1: Information on Climate Change and its Impacts

- Basic climate changes in your country: e.g. changes in precipitation and temperature in your region or country (figures!)
- Based on that: relevant climate change impacts in your region/country

*For extended version (optional):*
- *More detailed information on climate changes and impacts*
- *Adaptation goals*
- *If available: link to national/regional adaptation strategy or policies*

**NOTE:** If the “Bavarian” content fits the situation in your region/country, you can adopt it as it is. Only translation is needed.

# Section 2: Identification of Individual Impacts per Municipality

- Introduction text (contains direct reference to Bavaria)
- Relevant climate change impacts in your region/country → transfer from section 1
- If impacts differ from those in the Bavarian version:
  - Elaborate additional questions and answering options, or
  - Remove impacts that are not relevant in your region/country
- Questions and answering options for the evaluation scheme: modification according to your requirements needed
- Template for tracking the evaluation results: modification according to the relevant impacts in your region/country

**NOTE:** If the impacts in your country are similar to Bavaria, you can adopt the whole section. Only translation needed.

# Section 3: Adaptation Options

- Relevant climate change impacts in your region/country → transfer from section 1 and 2
- Municipal fields of action: check if they correspond to the organizational structures in your region/country → if necessary, modification of the fields of action accordingly (source: laws, eventually interviews with mayors/administrative staff)
- Adaptation options: eventually modification of adaptation options and implementation strategies according to the organizational structures in your region/country needed; adjustment of content based on information materials/literature available in your region/country
- Further information/literature: this part needs to be replaced by information/literature from your country, respectively information/literature in your country’s language
2.4.2 Adoption / Modification of technical implementation

As mentioned above, the tool is provided as an offline solution in the form of an interactive PDF file, which was prepared with the software Adobe InDesign.

For the transfer of the tool, HM will provide anyone who is interested with the open Adobe InDesign file, containing the complete content of the tool (German language content, templates, structure, buttons). This open document can then be edited according to your requirements. However, for editing the document the software Adobe InDesign is required. You can find further information on the software under http://www.adobe.com/products/indesign.html.

In case of questions, please turn to:
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3 Appendices

Appendix 1: Information Brochure

Herkunft Willkommen beim Klimareview für bayerische Kommunen!

Durch den globalen Klimawandel verändern sich auch die klimatischen Verhältnisse in Bayern:
- Wärmere Winter vergrößern die Schneedecke in den Wintersportregionen der Alpen und der Mittelgebirge
- Klimaschutzzwänge und intensivere Trockenperioden beeinflussen die Trinkwasserversorgung besonders in Nordbayern
- Starkwetterereignisse führen zu stärkeren Überflutungsrisiken von Wasser und bedrohen alle Kommunen Bayerns

Was bedeutet das genau für Ihre Kommune?
- Welche Ausgangsbereiche sind vom Klimawandel betroffen?
- Welche Anpassungsmaßnahmen gibt es?
- Wie und in welchen Bereichen können Sie aktiv werden?

Um diese Fragen zu bearbeiten und Sie als Bürgerin/Bürger oder Angeordneten einer Gemeinde auf eine „nahtschieflieh“ Art an die Themen Klimaproblematik herankommen, wurde vier verschiedene digitale Klimareviews entwickelt. Es ist auf kleinen Kommunen in Bayern zugegriffen, orientiert sich an den kommunalen Aufgabenstrukturen und bietet Ihnen einen Überblick zur Einführung von Anpassungsmaßnahmen.

Mit dem Klimareview können Sie herausfinden...
- wo sich der Klimawandel in Bayern bemerkbar macht
- welche Folgen Ihre Kommune konkret betreffen
- wo Sie Ihre Kommune anpassen können

Der Klimareview befindet sich auf dem beigefügten USB-Stick. Er enthält ein interaktives PDF-Dokument, bei dem ein barrierefreier Weg durch das Dokument gewählt werden kann. Darüber hinaus gibt es eine Funktion zur automatischen Erstellung von Anpassungsmaßnahmen.

Auf den nächsten Seiten erhalten Sie einige Hinweise zum Inhalt und zur Bedienung des Check.

Der Klimareview für bayerische Kommunen – so funktioniert’s!

Der Klimareview ist interaktiv konzipiert, d.h. Sie können verschiedene Optionen wählen und somit die Reihenfolge der Themen bestimmen. Dadurch erhalten Sie einen Überblick über die wichtigsten Aspekte des Klimawandels in Bayern.

Anhang:
- Vorgang/Schrittplan
- PDF – Zusätzliche Information
- Website
- Hauptmenü/Übersicht

Abschnitt 1: Informationen zum Klimawandel und seine Folgen in Bayern

Dieser Abschnitt liefert Ihnen einen Überblick über den Klimawandel und seine Auswirkungen in Bayern.

1. Informationen über den Klimawandel und seine Folgen in Bayern
2. Einführung der individuellen Bedürfnisse der Gemeinde durch die Folgen des Klimawandels
3. Anpassungsmaßnahmen und Strategien zur Umsetzung

Hinweise:
- Die Auswirkungen des Klimawandels werden detaillierter in der Informationsdokumentation behandelt.
- Angeboten sind auch weitere Informationsquellen für den Bereich Klimawandel.

Dieser Informationsdokument wurde bewusst napp gehalten. Die beste Methode, die Inhalte zu verstehen, ist die aktive Verwendung der Inhalte sowohl als Grundlage für weitere Anpassungsvorschläge als auch als Orientierung für die Umsetzung.
WP7, Manual for transnational transfer of the Bavarian adaptation tool


Abschnitt 3: Anpassungsmaßnahmen und Strategien zur Umsatzung

Diese Abschnitte zeigen Ihnen Maßnahmen zur Anpassung an die verschiedenen Klimawandelschützer mit Vorsicht zur Umsatzung. Ziehen Sie den aktuellen Stand in Ihrem Stadtplan in Anlehnung an Ihre Gemeinde überprüfen und erweitern, in welchen Bereichen noch Handlungsbedarf besteht.

Darüber hinaus gibt es als optionales Handlungsfeld den Bereich Tourismus.


Zudem gibt es für jede Klimawandelschutz-Checkliste, mit denen Sie die jeweilige Stand der Umsatzung von Anpassungsmaßnahmen in Ihrer Gemeinde ermitteln können. Öffnen Sie diese, bevor Sie mit den Anpassungsmaßnahmen beginnen und positionieren Sie sie entsprechend der Bearbeitung am Computer oder drucken sie sich aus.

Wenn Sie nun die Anpassungsmaßnahmen durchführen oder erarbeiten Sie daraus eine anwendbare Strategie. Der Komplexität entsprechend, sollte die Umsatzung in Ihrer Gemeinde noch angesprochen werden.

Abschnitt 2: Ermittlung der Behördenaufgaben der Gemeinden durch die Folgen der Klimawandlung


Zu Beginn des Abschnitts werden Sie gebeten, je einer der nachfolgenden Formulare zu öffnen. Positionieren Sie dieses auf Ihren Bildschirm, so dass Sie sowohl das Formular als auch den Klima- check sehen können oder drucken Sie es aus.

Zu Beginn finden Sie das Klima-Check, in dem die verschiedenen Klimawandelschützer so wie die Handlungsfelder für die Behörden innerhalb der Gemeinde ermittelt werden. Beachten Sie bitte, dass der Klima-Check als PDF-Datei aus Abschnitt 2 gelangen Sie hier zur Verfügung, um auf dem jeweiligen Bildschirmdialog die Behörden zu erkennen, in denen Ihre Gemeinde Bedarf hat und somit Handlungsbedarf besteht.
Appendix 2: USB-Stick