



## **Risk assessment of extreme precipitation in the coastal areas of Chennai as an element of catastrophe prevention**

**Prof. Dr. A. Drescher (1)**, Prof. Dr. R. Glaser (1), Dr. C. Pfeiffer (1), Dr. J. Vencatesan (2), S. Glaser (1), M. Lechner (1), E. Schliermann-Kraus (1), Dr. P. Dostal (1)

(1) Department of Physical Geography, Albert-Ludwigs-University Freiburg, Germany

(2) Care Earth, Chennai, India

(axel.drescher@geographie.uni-freiburg.de/ Phone: +49-761-2033513)

In the south Indian megacity Chennai, disastrous tropical monsoon linked with excessive precipitation frequently leads to wide-flat floods in the coastal plains. The situation is characterized by complex interrelations of anthropogenic and ecological factors that were analysed through an interdisciplinary risk and vulnerability assessment by an international team of scientists. The study was commissioned by the GTZ - Advisory Project "Disaster Risk Management in Development Cooperation" and funded by the BMZ.

The analysis of the meteorological data clearly shows that the reason for the increase of floods is not based on a long or medium-term trend reflecting increasing precipitation amounts at the eastern coast of India. However, the combination of the precipitation data with the extends of the main water body emphasizes that the flood risk in the south of Chennai is increasingly due to man-made changes. Without a sustainable planning strategy especially facing the natural run-off due to single strong rainfall events, Chennai will suffer from devastating floods in the future. This was already indicated during the exceptional flood of 2005.

The socio-economic analysis of risk perceptions and management strategies underline

the interrelated reasons for floods, which are embedded in a broader context of economic globalisation, labour migration and rapid urbanisation. The pressure on cities and their planning authorities grows with its inhabitants. The demand for developing areas leads to the ecological destruction of the marshland close to Chennai. Planning authorities do not react accordingly. They are paralysed by different interests, corruption and economy driven decisions and also by a discord in the roles and responsibilities of different agencies. Illegal as well as legal garbage dumping is an increasing hazard. Existing infrastructure is not properly maintained. Canals are dysfunctional; storm water drainages are not cleaned regularly; water bodies are not maintained. Residential areas as well as encroachments mushroom fast. Uncontrolled construction of IT-companies and private citizens, both legal as well as illegal, are in complete ignorance and violation of the norms and rules of the government. The combination of these factors results in a collapse of natural drainage systems.

The social, health, environmental as well as economic consequences are immense. Although, stakeholders and persons concerned by floods seem to be fully aware of the root causes, yet little is done to change it. Political dynamics must be tackled in order to guarantee sustainable measures to solve the situation.

The results of this study were merged into an interactive information portal that is publicly accessible and can be expanded by the project partners in Chennai. This instrument was presented in a policy workshop in Chennai to planners, administrative managers and resident welfare organisations as a medium to help further planning and decision-making. The workshop provoked a very high interest of the media and the public. It supported the efforts already undertaken by nature conservation and human rights organizations to influence planning politics. Generally, a better accessibility of reliable data is crucial for the improvement of planning all over India. In this context, the information portal with publicly available data is as a very useful tool that could serve as an example for future projects.