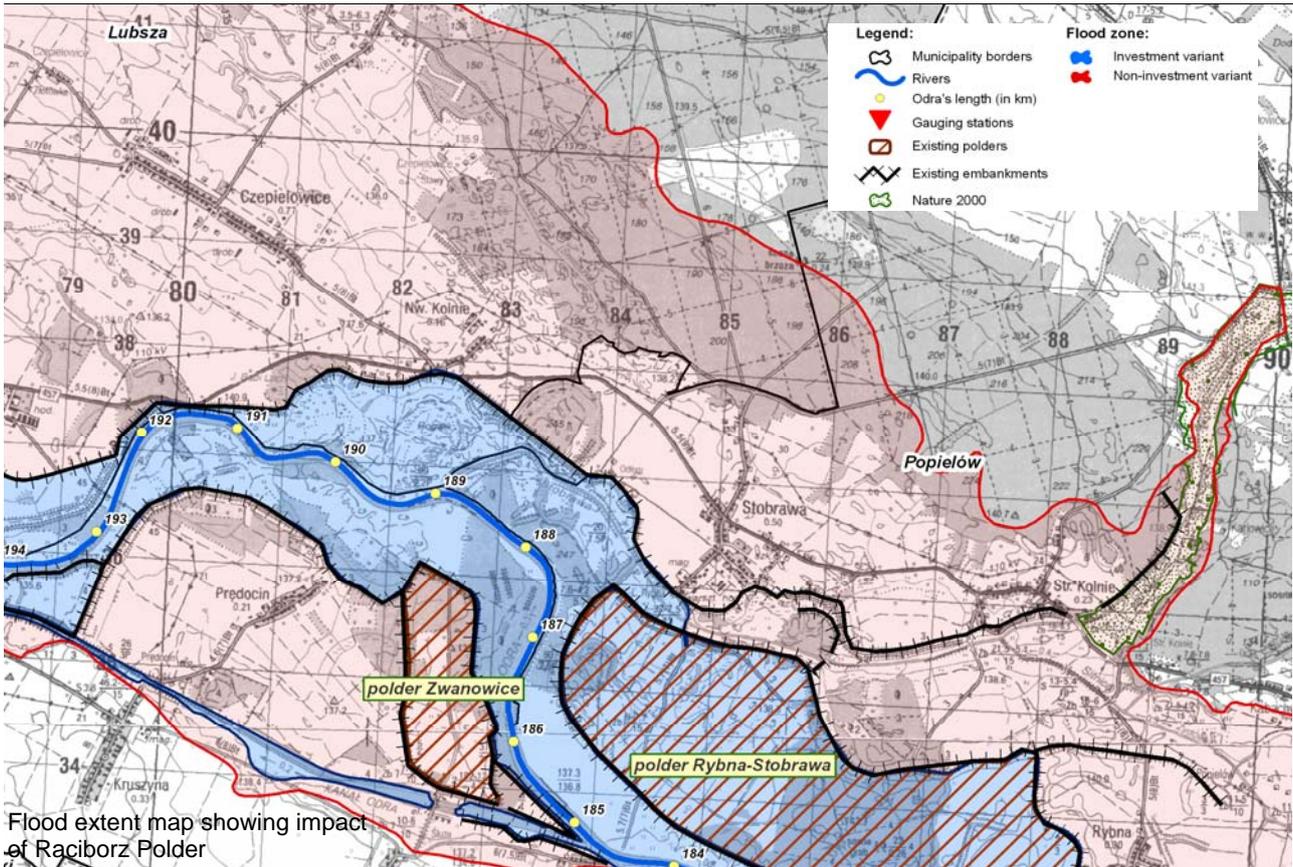




POLAND

**CLIMATE CHANGE ADAPTATION
 FLOOD PROTECTION
 Odra RIVER BASIN FLOOD PROTECTION PROJECT**



Flood extent map showing impact of Raciborz Polder

Client	Regional Authority of Water Management Gliwice, Polen	Scope of Services
Financing	IBRD CEB	<ul style="list-style-type: none"> • Review of detailed design, hydrological and hydraulic modelling • Preparation of bidding documents and support in tendering procedure • Construction supervision and contract management • Environmental Assessment (EMP, EIA) • Update and implementation of a Resettlement Action Plan • including detailed design, tendering and construction supervision for a new village • Application of Cohesion Fund financing (EU) • Project management support and technical assistance • Training of staff of PIU and the Regional Authority of Water Management Gliwice
Duration of Services	11/2009 - 08/2015	
Cost of Implementation	300 Mio EURO	
Value of Services	12.3 Mio EURO	

Context and Challenge

The navigable Odra River is flowing in the stretch of 742 km through Poland. Of the total basin area of 120 000 km² 89% belong to the Baltic state. Flooding is a widespread climatic hazard and extended floods are common. In 1997 the largest extreme flood ever registered on the Odra caused 54 deaths in Poland and infrastructure damages of around 2.2 Billion Euro. Especially the project city of Raciborz was struck: A third of the city was inundated causing severe damages to the industrial infrastructure.

Regional climate change predictions assume that the mean annual temperature is expected to increase by 1.6° C by 2050. Changed precipitation patterns and extreme rainfall result in higher risk of river flooding in the Odra basin. While in the 19th century four mayor floods were reported, the number tripled in the 20th century. The 1997 flood was caused by an extreme rainfall event: With an average rainfall exceeding by four times the long term average, up to 400 mm of rain were recorded over four days at some meteorological stations.

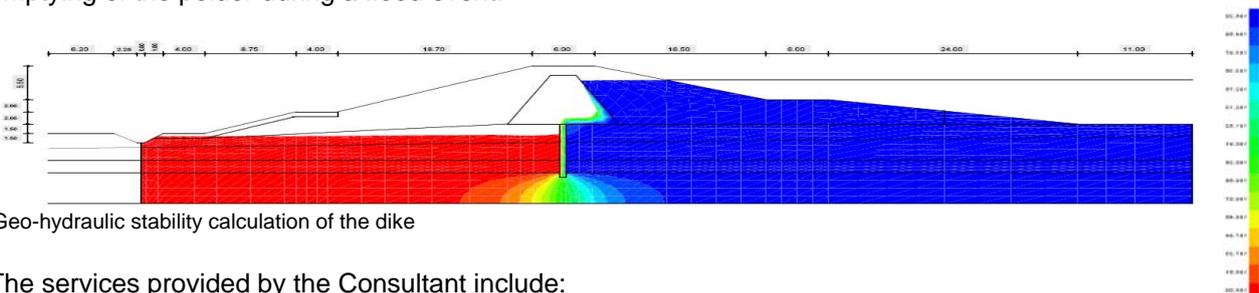
Project Description

In the Odra Valley it is becoming crucial to improve preventive protective measures for climate change adaptation. The prospect of increased flood hazards due to regional climate change impacts require flexible adaptation strategies. Thus, the 1997 flood was the trigger for the riparian countries to cooperate effectively in the field of flood protection on the Odra. The international donor community launched a comprehensive program to enhance flood protection and to protect more than 2.5 Mio. people against flooding.

The Odra River Basin Flood Protection Project (ORFPP) is a major project for the implementation of the National Water Management Program for the Odra. The main development objective of the overall project is to protect the population in the Odra River Basin against loss of life and damage to property caused by severe flooding. The Project shall protect more than 2.5 Mio. people against flooding in several towns such as Raciborz, Kedzierzyn, Kozle, Krapkowice, Opole, Brzeg, Olawa and Wroclaw, and various settlements.

This shall be achieved by (i) reducing the extreme flood peaks through storage in a dry polder on the Odra River just upstream of Raciborz town, enabling a reduction of the flood peak downstream of the reservoir and allowing better control of the operation of the river system; and (ii) by increasing the flood carrying capacity of the Odra River channels through and around Wroclaw.

The core component of the ORFPP is the construction of Raciborz Dry Polder, which is located on the Odra River close to the border with the Czech Republic and Raciborz. In order to retain flood water, the polder will cover an area of 2,630 ha with a retention volume of approx. 185 Mio. m³ in a flood event. The dike will have a length of 21.8 km and be built as an earth fill dam with an embankment volume of approx. 7.4 Mio m³. Hydraulic structures such as gates or spillways will be constructed in order to regulate the filling and emptying of the polder during a flood event.



Geo-hydraulic stability calculation of the dike

The services provided by the Consultant include:

- (i) The Consultant is responsible for implementation of the core component of the ORFPP. The services provided regarding the construction of Raciborz Dry Polder (including dike and hydraulic structures) encompass: Review of detailed design; tendering (preparation of bidding documents and support in tendering procedure); construction supervision of the retention polder as well as contract management.
- (ii) Environmental Impact assessment (EIA) for the retention polder and Environmental Management.
- (iii) Support to flood forecasting, hydrological and hydraulic modelling; implementation of ecological enhancement works in the Odra River channel.
- (iv) Responsibility for the resettlement of a village within the polder and implementation of an Resettlement Action Plan, including design and construction of a new village with 90 houses for approx. 1.000 people.