

History and current state of geosynthetic applications in Germany

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ABSTRACT: The history of using synthetic materials in construction applications in Germany is going back to the use of polyisobutylene membranes for the sealing of buildings in the thirties of the last century. In the fifties and sixties of the 20th century woven fabrics and PVC membranes have been the beginning of synthetic material applications mainly in hydraulic engineering in Germany. The 10th ICG which will be held in the former divided city of Berlin just before the 25th anniversary of the „fall of the Berlin Wall“ gives the opportunity to highlight the different developments of geosynthetics in the two German States (FRG / GDR) with different political and social systems. The lecture will also deal with the German pioneering application of needle-punched nonwoven geotextiles as filter layer in revetments of canals and rivers, but also in high dams. The development of shear-resistant geosynthetic clay liners has its roots in Germany, too, a development which changed the world of sealing systems in environmental and hydraulic engineering. For landfill engineering the unique certification system established in Germany by law for all geosynthetics being used in landfill sealing systems and developed by the Bundesanstalt für Materialforschung und -prüfung (BAM) [Federal Institute for Materials Research and Testing], Berlin, will be presented. Finally, the state of the art of the use of geosynthetics in reinforcement applications and new developments for scour protection at offshore wind turbines by using sand containers will be highlighted.

Keywords: geosynthetics history, geosynthetic filter, geomembranes, needle-punched geosynthetic clay liner, certified landfill sealing systems, reinforcement, scour protection