



Challenges & Changes

**TUNNELLING  
ACTIVITIES  
IN  
JAPAN  
2006**

JAPAN TUNNELLING ASSOCIATION

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## PREFACE

I feel really privileged to be given this opportunity to address tunnel engineers throughout the world on the occasion of the publishing of the 2006 edition of Tunnelling Activities in Japan, a Japan Tunnelling Association (JTA)'s biannual publication. Despite the fact that in recent years tunnel construction projects in Japan are on the downturn, our country remains an outstanding global leader in terms of tunnel construction volume, with more than 12 million m<sup>3</sup> excavated annually. Increase in tunnel length and expansion of tunnel cross section are two specific features in mountain tunnels of recent tunnel projects in Japan. The advancement in tunneling technologies in recent years has made it possible to construct economically long tunnels and large section tunnels in the complex and wide-ranging ground conditions in Japan. As a result, it has become possible to choose the shortest routes and higher standards in railway and road projects. In construction of urban tunnels, on the other hand, there are many cases in which construction work is implemented in the proximity of existing structures in areas where there is a convergence of underground structures such as subways, utility lines, etc. In addition, urban tunnels must be constructed to meet strict demands for reducing the impact on the surrounding environment. These factors have fueled the progress in the development of design and construction methods and shield machines that can fulfill the specific requirements for construction of urban tunnels. Based on such recent specific examples, this booklet presents a selection of some typical examples representative of the numerous tunnel projects and technological developments in Japan. I will be pleased if these articles prove useful for tunnel engineers around the world.



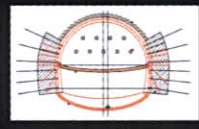



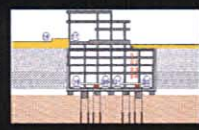


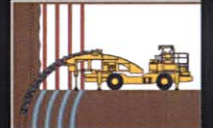









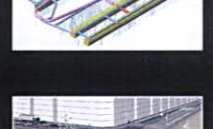


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