The necessary reduction in consumption of non-renewable resources led to the use of recycling materials for road construction on a large scale in recent years. Asphalt Recycling in hot process - meaning the recovery and reuse of reclaimed asphalt in new asphalt roads - is realized at a high level in some European countries such as the Netherlands, Sweden and Germany already - reaching recycling rates up to 90 % concerning most recent test tracks.

Compared to European background, the Austrian state-of-the-art in cold recycling of asphalt pavements is rather well developed, however, the recycling rate as regards re-use in hot asphalt mixes is still limited, mainly due to high percentages of round surfaces in reclaimed asphalt mixtures and to strict regulations in the national standards as regards asphalt mix quality for heavy-duty roads. The project ORAB will provide the necessary research and development (R&D) to increase the recycling rate of reclaimed asphalt mixtures in Austria, and will provide a sound basis for adapting the national standards. Hence the aim of the R&D-project ORAB is an increase in the recycling rate of reclaimed asphalt to be used for hot mix asphalt in new road pavements of the highest level. Appropriate procedures are developed and tested that reclaimed asphalt mixtures, which are obtained from bituminous base and binder layers with unfavorable high portions of round aggregate surfaces, can be added to new hot mix asphalt with a share of more than 20%. The resulting recycling asphalt mix can therefore be used for new asphalt base and binder courses for heavily trafficked roads of load class S (according to the Austrian Standard RVS 03.08.63), and it is at least equivalent in performance properties compared to conventional asphalt mixtures. Procedures to be developed within the R&D-project ORAB are notably
(1) the optimum reclaiming and processing techniques of reclaimed asphalt (especially taking into account the influence of different milling and crushing techniques on the quality of the asphalt granulate),
(2) the response and the taking into account of the negative effects on performance characteristics of high proportions of round aggregate surfaces (analysis with adequately realistic compaction, preparation of asphalt slabs, image processing analysis, techniques, and conduction of performance-related laboratory tests),
(3) the realization of maximum reclaimed asphalt addition rates (with hierarchical variation of asphalt granulate quality, the addition rate, the type of binder, and adding rejuvenators), taking into account all technical and economic constraints and
(4) the prediction of the theoretical in-service life of asphalt pavements made from recycled asphalt.

Based on the results obtained and due to the long-time experience of TU Braunschweig an "asphalt recycling guide" is produced. These guidelines cover the entire recycling process of reclaimed asphalt. It especially covers recommendations for the analysis of reclaimed asphalt and it explains the impact of different types of reclaiming and processing techniques (milling, crushing) on the quality of reclaimed asphalt. Recommendations are given for mix design process with particular attention to unfavorable high proportions of round aggregate surfaces. Furthermore fundamental laboratory tests addressing the performance characteristics of recycled asphalt pavements are performed and appropriate acceptance levels are derived. The "asphalt recycling guide" will reliably support future work to further develop the Austrian Standards, and for creating a proper framework to allow higher recycling rates in asphalt base and asphalt binder courses for heavily trafficked road pavements (load classes S and 1 according to the Austrian Standard RVS 03.08.63).