



Ideen, die bestehen.



# AUSTRIA SHOW CASE

## Ankara 2012

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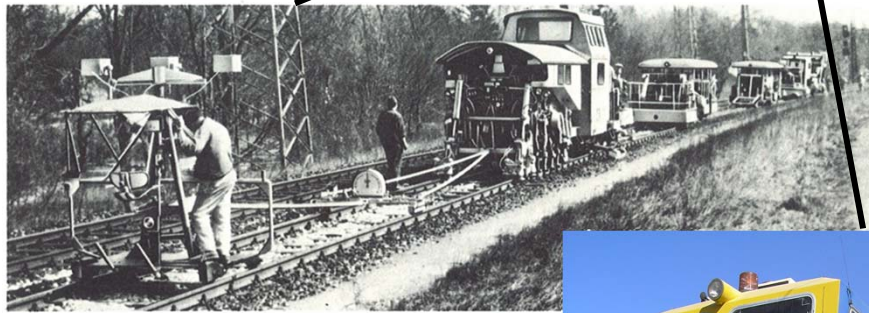
Aydın Aliakar,  
Head of Project Business Turkey



PAST

NOW

FUTURE



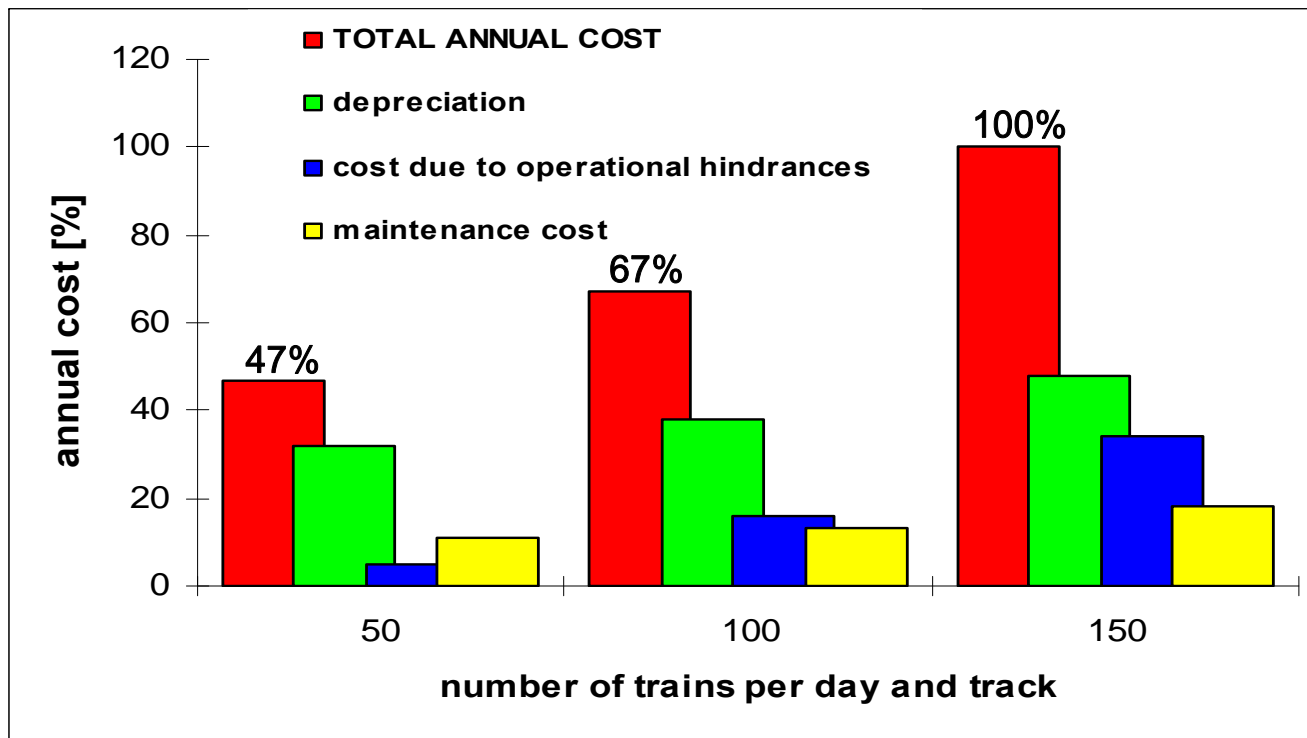
**THEME**

# **COST EFFICIENT TRACK MAINTENANCE STRATEGIES, TECHNOLOGIES AND MACHINES**

## CONTENTS

- ✓ MAINTENANCE COSTS
- ✓ BALLAST CLEANING
- ✓ TAMPING
- ✓ DYNAMIC TRACK STABILIZATION
- ✓ MACHINE AVAILABILITY

## MAINTENANCE COSTS



Permanent way strategies aim to extend service-life of track

Reducing maintenance and accepting a reduction of service is highly uneconomic

Operational costs caused by maintenance work (or not done maintenance) are decisive



## BALLAST CLEANING

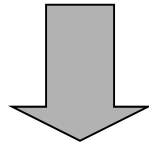


**Ballast fouling**

## BALLAST CLEANING

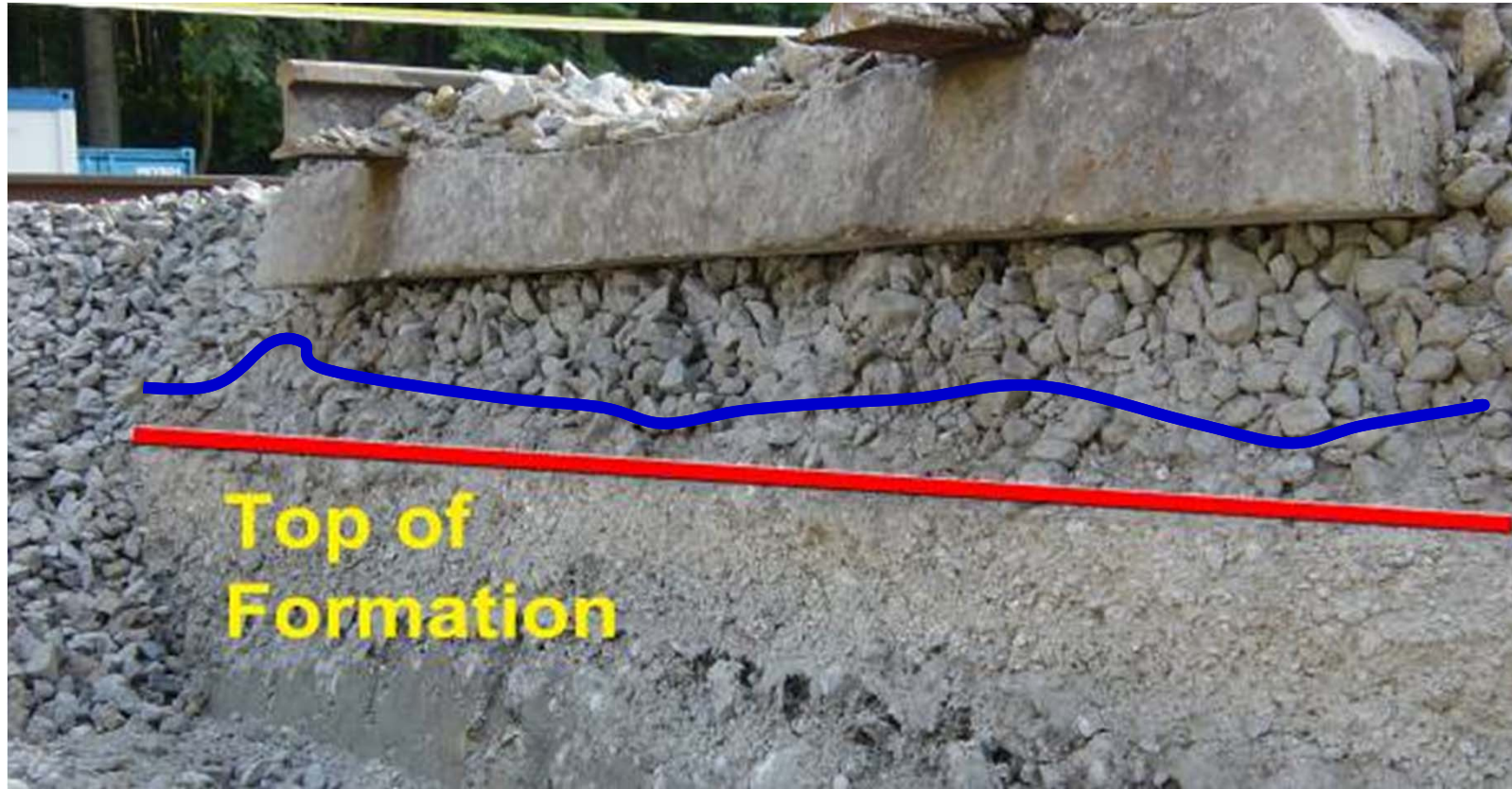
### Neglected Ballast cleaning causes:

- higher costs of routine maintenance
- temporary speed restriction
- reduced service life of the permanent way material



### COST REDUCTION BY BALLAST CLEANING

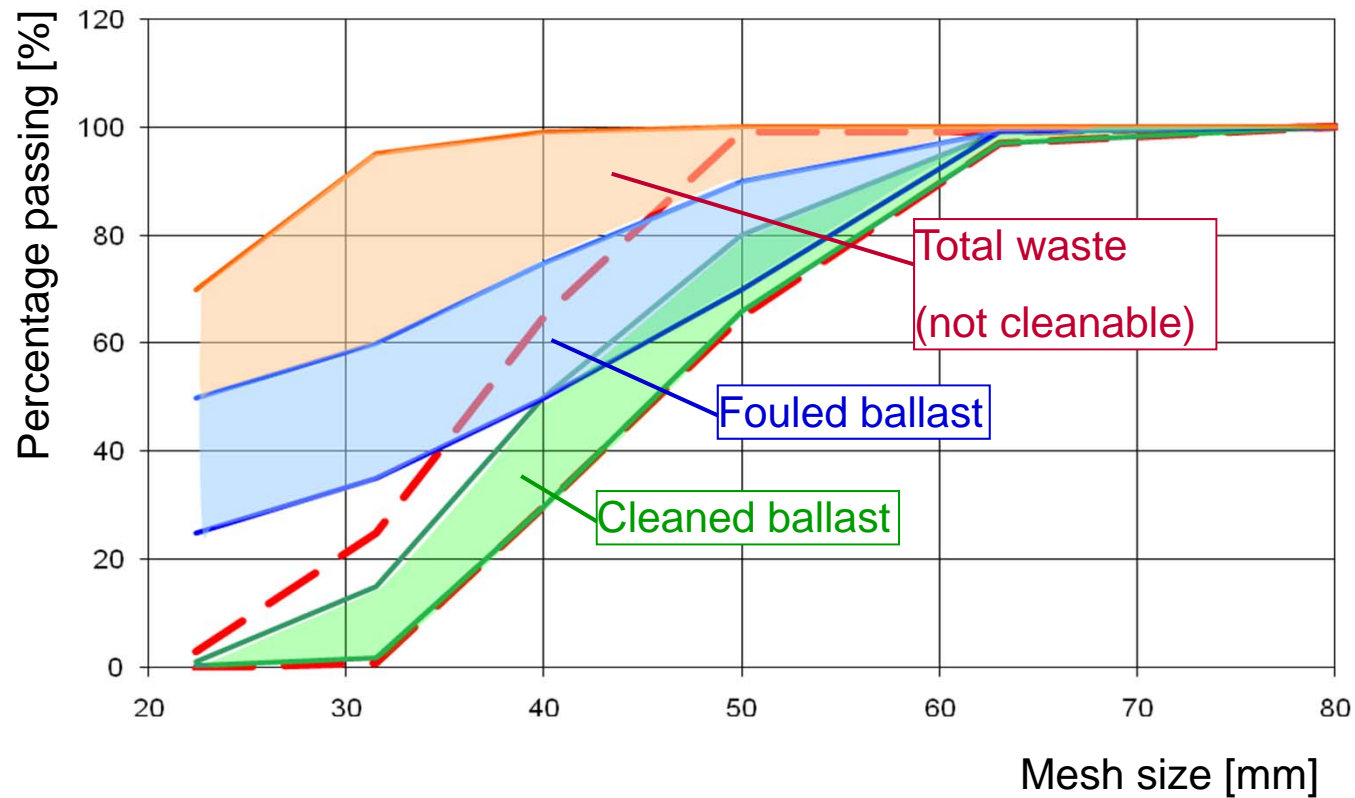
## BALLAST CLEANING



## DEVELOPMENT OF FINES

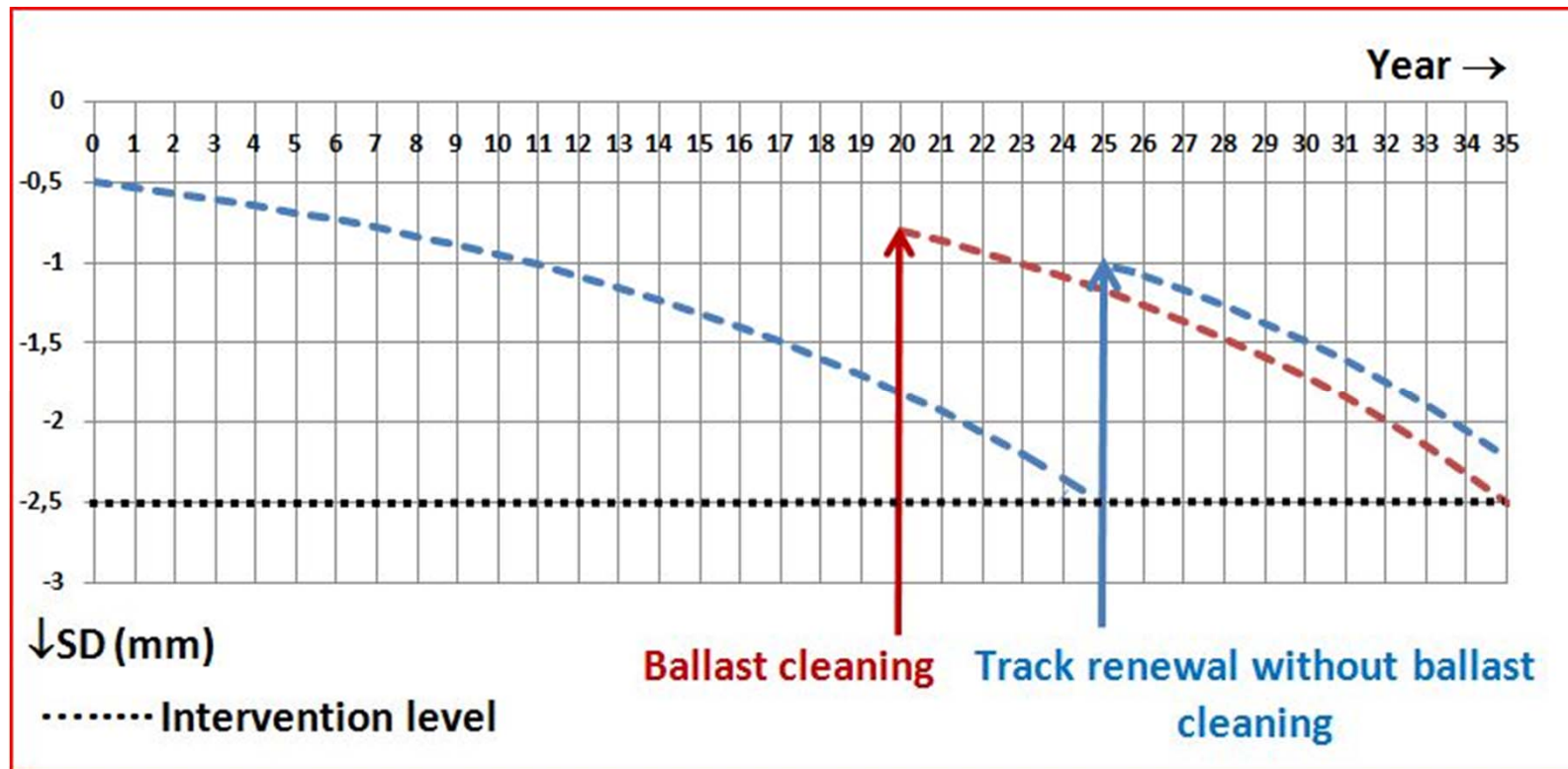


## BALLAST CLEANING



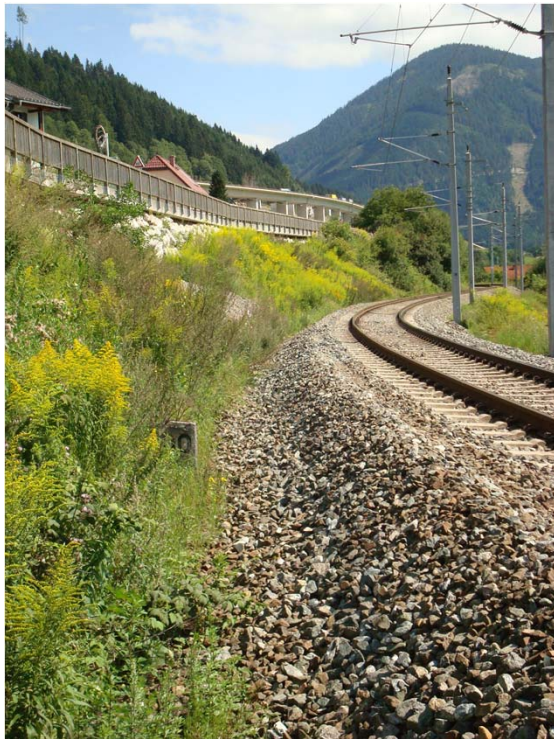
## BALLAST CLEANING – SCREENING QUALITY

## BALLAST CLEANING

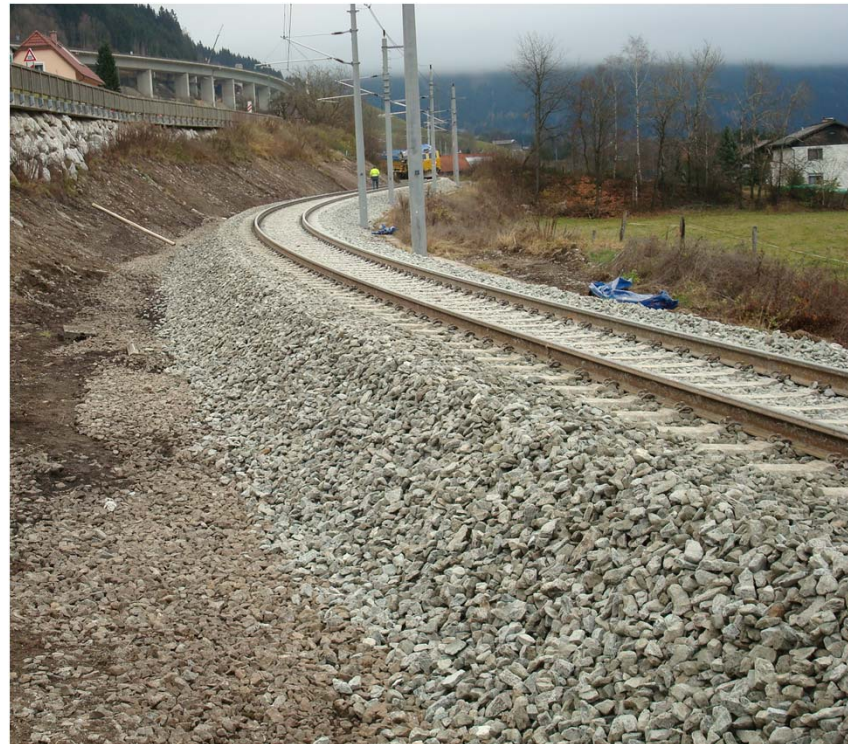


## DEGRADATION OF GEOMETRY AND BALLAST

## BALLAST CLEANING



**BEFORE BALLAST CLEANING**



**AFTER BALLAST CLEANING**

## BALLAST CLEANING

### IMPORTANT

- BY CONSTRUCTION OF A CATCHWATER DRAIN THE DRAINAGE OF THE TRACK IS WARRANTED
- MOREOVER CLEARING BETWEEN BALLAST AND CATCHWATER DRAIN SECURES THE VENTILATION OF THE BALLAST BED

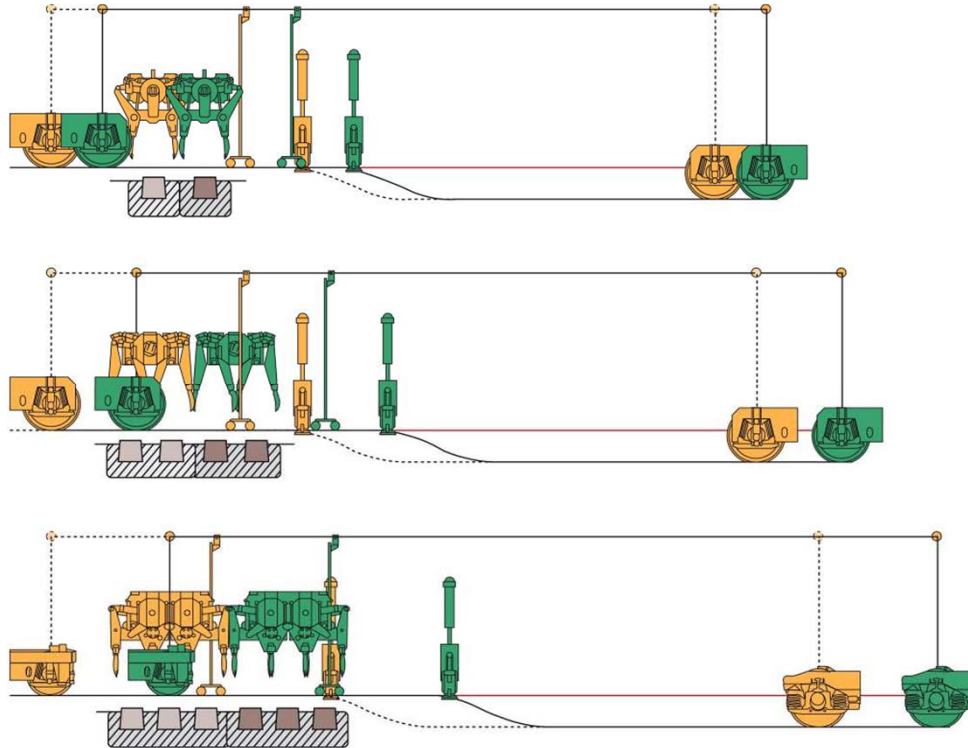


## TAMPING

**MAXIMIZATION OF TAMPING  
PERFORMANCE IN  
SCHEDULED POSSESSIONS  
BY ASSURING THE QUALITY**

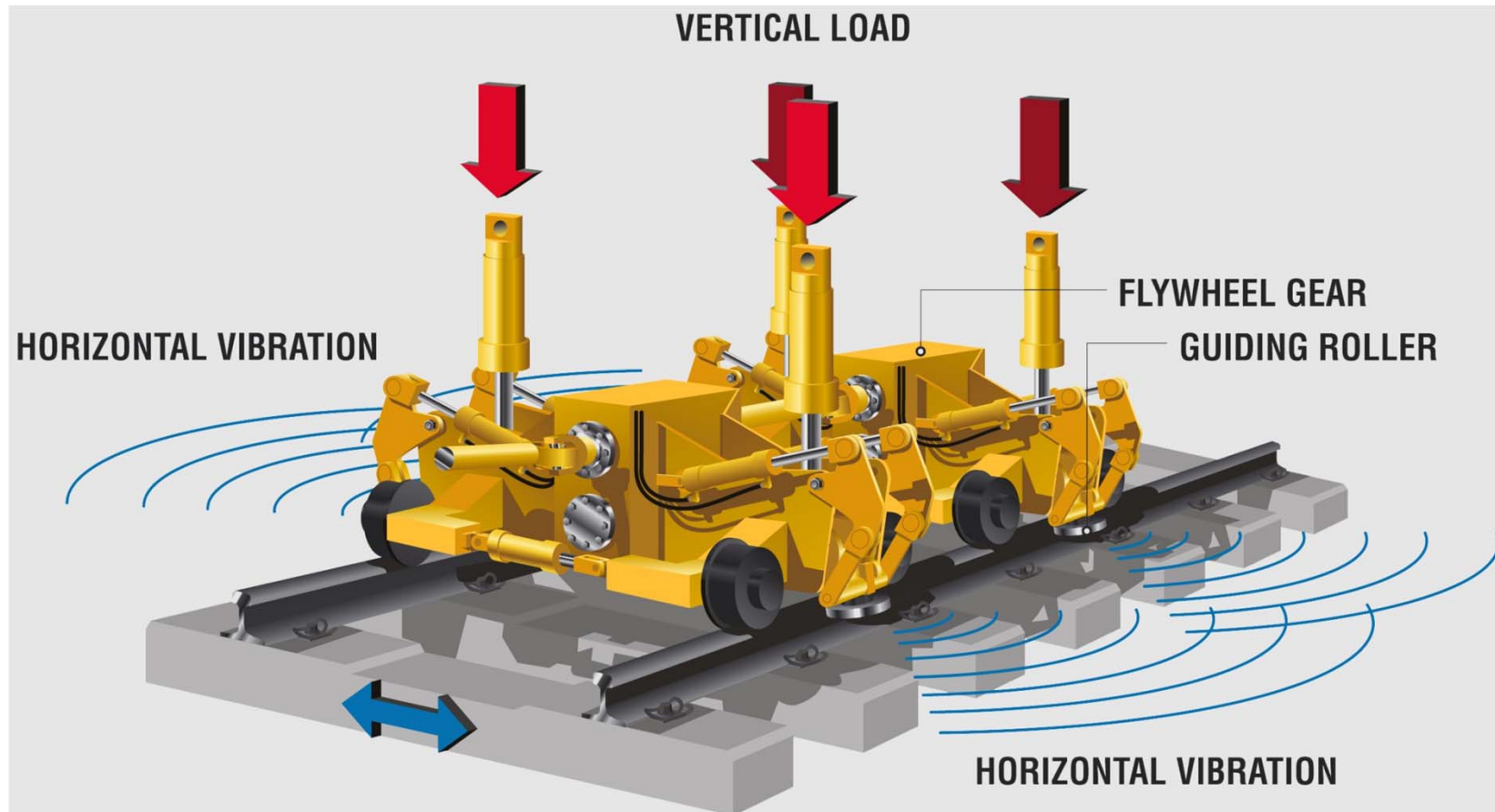


## TAMPING



## POSITIVE EFFECT OF MULT-SLEEPER TAMPING

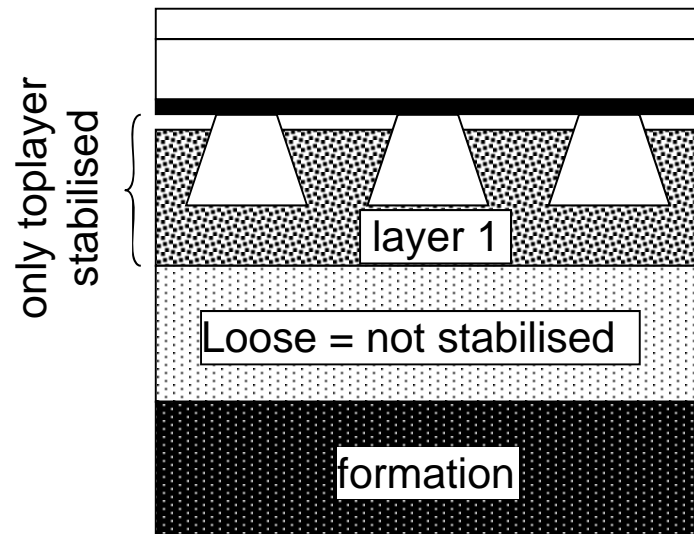
## DYNAMIC TRACK STABILIZATION



# DYNAMIC TRACK STABILIZATION

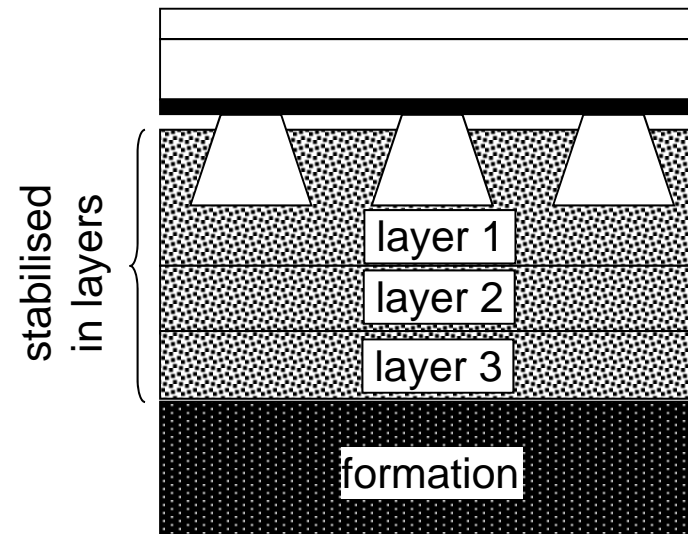
## STABILIZATION OF NEWLY BALLASTED TRACKS

NOT IDEAL



lower layer inhomogeneous  
irregular large settlements

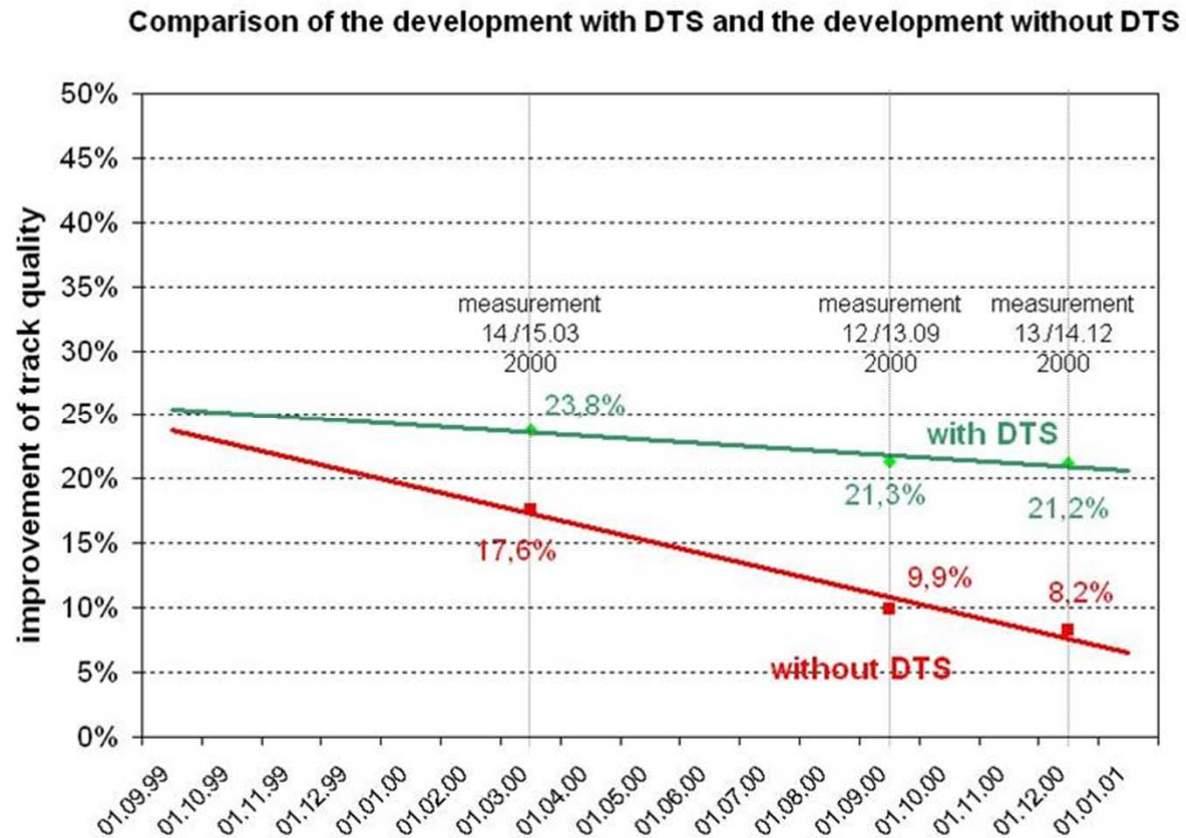
CORRECT - IDEAL



ideally homogeneous  
compacted & stabilised  
minimum settlements  
durable track geometry



## DYNAMIC TRACK STABILIZATION



IMPROVEMENT OF TRACK QUALITY BETWEEN REGENSBURG AND MUNICH

## DYNAMIC TRACK STABILIZATION

- EXTENSIVE ECONOMIES BY AVOIDING SPEED RESTRICTIONS WITHIN THE FIRST 48 (72) HOURS AFTER TAMPING AS A RESULT OF CONTROLLED STABILIZATION
- SUSTAINED IMPROVEMENT OF TRACK BED BY CONSTRUCTION IN LAYERS. CONSEQUENTIAL ENLARGEMENT OF TAMPING CYCLES AND ECONOMIES OF MAINTENANCE COSTS

## MACHINE AVAILABILITY



**MAXIMIZATION  
OF  
MACHINE AVAILABILITY**

## **MACHINE AVAILABILITY**

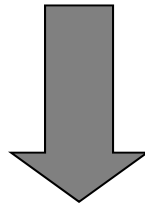
### **MACHINE AVAILABILITY BY**

- TRAINED AND CERTIFICATED MECHANICAL AND ELECTRICAL SPECIALISTS
- LARGE DEPOT OF SPARE PARTS DIRECTLY ON THE MACHINES
- MACHINE MAINTENANCE ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND ADDITIONAL PREVENTIVE MAINTENANCE BASED ON LONGTIME EXPERIENCE OF OURSELVES



## MACHINE AVAILABILITY

- ANNUAL SAVETY CHECK ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND THE REGULATIONS OF THE NATIONAL AND INTERNATIONAL PUBLIC AUTHORITIES
- PERIODICAL OVERHAUL IN ACCORDANCE WITH THE REGULATIONS OF THE NATIONAL RAILWAY AUTHORITY



**ALL THE ISSUES DESCRIBED ABOVE CAN  
ONLY BE EXECUTED BY  
CERTIFICATED MAINTENANCE WORKS**

## MACHINE AVAILABILITY



CERTIFICATED MAINTENANCE WORKS WELS

## CONCLUSIONS

### COST EFFICIENCY MEANS

- ✓ HIGH INITIAL QUALITY BY CONSTRUCTION IN LAYERS
- ✓ INCREASING OF LIFE CYCLE BY BALLAST CLEANING
- ✓ OPTIMIZATION OF TAMPING OUTPUT IN SCHEDULED POSSESSIONS BY USING HIGH PERFORMANCE TAMPING MACHINES
- ✓ RAISE OF TRACK AVAILABILITY BY IMPLEMENTATION OF DYNAMIC TRACK STABILIZERS
- ✓ SUSTAINED IMPROVEMENT OF QUALITY BY USING HIGH PERFORMANCE TAMPING MACHINES AND DYNAMIC TRACK STABILIZERS
- ✓ QUALITY- AND EFFICIENCY-ORIENTED WORK BY CERTIFICATED SPECIALISTS
- ✓ MAXIMIZATION OF MACHINE AVAILABILITY BY PREVENTIVE MAINTENANCE AND OVERHAULS IN CERTIFICATED WORKS

Ideen, die bestehen.



**DANKE.  
THANK YOU.  
TEŞEKKÜR EDERİZ.**