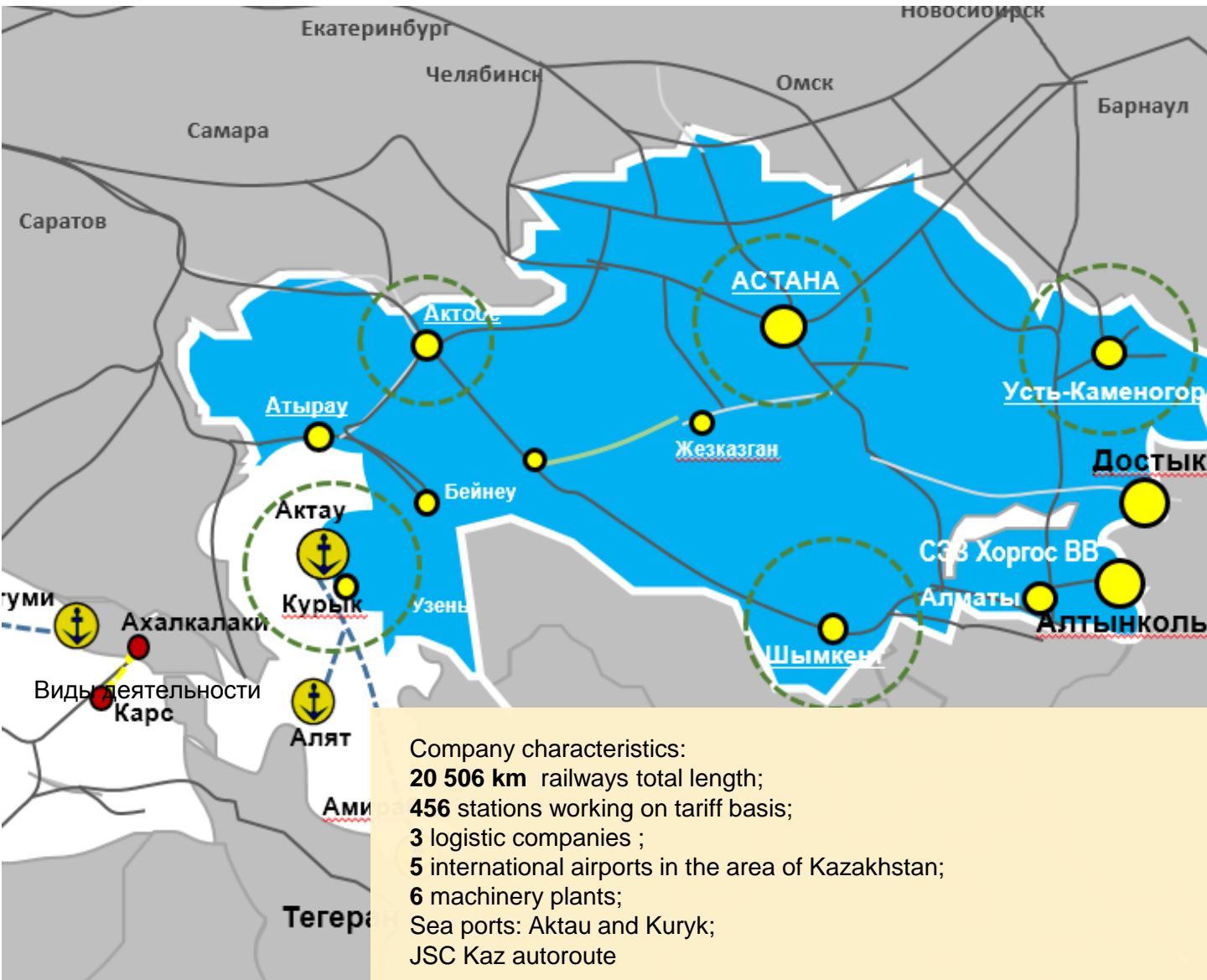


«Rail maintenance under extreme weather conditions»



Beijing, June 2017

KTZ is a transport-logistic holding which integrate logistic and transportation companies, owners of terminals and infrastructure of all transport modes



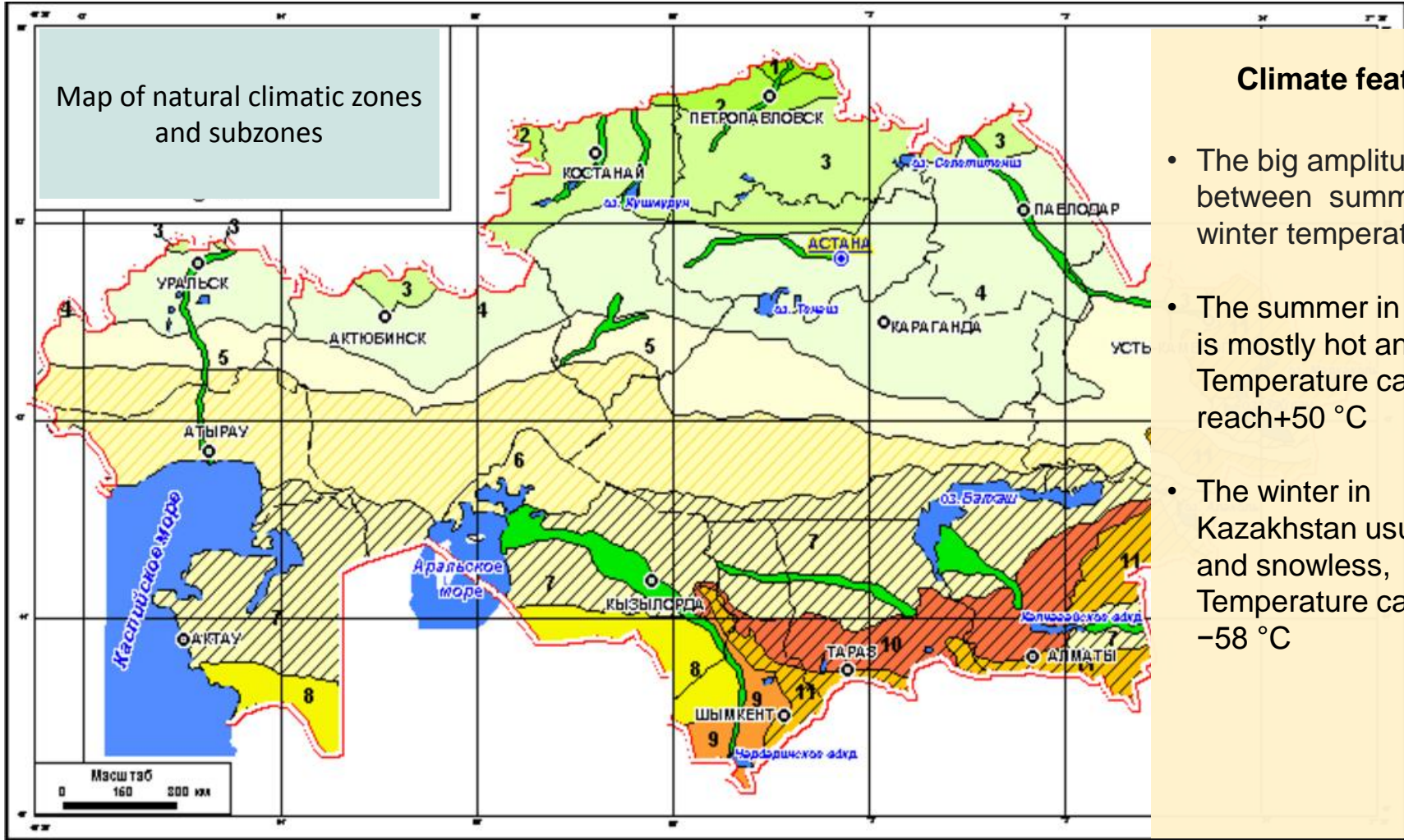
Company characteristics:
20 506 km railways total length;
456 stations working on tariff basis;
3 logistic companies ;
5 international airports in the area of Kazakhstan;
6 machinery plants;
 Sea ports: Aktau and Kuryk;
 JSC Kaz autoroute

Виды деятельности

<p>Ж-д перевозки</p>	<p>Морские перевозки</p>
<p>Сеть аэропортов</p>	<p>Автоперевозки</p>
<p>Контрактная логистика</p>	<p>Машиностроение</p>

Climate of Kazakhstan — on the most part of territory is sharply continental

Map of natural climatic zones and subzones



Climate features

- The big amplitude between summer and winter temperature
- The summer in country is mostly hot and arid. Temperature can reach +50 °C
- The winter in Kazakhstan usually cold and snowless, Temperature can reach -58 °C

УСЛОВНЫЕ ОБОЗНАЧЕНИЯ

Зона лесостепей

- 1 Южная слабо влажная, умеренно-теплая
- 2 Умеренно-засушливая (теплая)

Зона степей

- 3 Умеренно-засушливая и засушливо-теплая
- 4 Умеренно-сухая и сухая теплая
- 6 Степная очень сухая, умеренно-жаркая

Зона пустынь

- 8 Северная теплая очень сухая, умеренно-жаркая
- 7 Средняя очень сухая, жаркая
- 9 Южная очень сухая жаркая

- 8 Предгорная очень сухая очень жаркая
- 10 Предгорная очень сухая

11 Горные пояса

12 Поймы

Risks of weather conditions influence:

- ❑ Snow drifts, avalanches
- ❑ Flood, infrastructure erosion
- ❑ Sand drift
- ❑ Storm speed up to 25 m/s
- ❑ Contact wire icing
- ❑ other

Severe weather risks :

- ❑ Restriction on train traffic
- ❑ Threat on traffic safety
- ❑ Time delay on goods and passengers delivery
- ❑ Technical means damage
- ❑ other

Sand prevention



The total length of sand drift railways is 437,6 km.

Main regions:
Kyzylorda oblast
Atyrau oblast
Mangystau oblast

Water flooding prevention



Main regions: Kustanay, Pavlodar, Karaganda, Semey, Almaty, Zhambyl, Kyzylorda

Snow prevention



Fenced:
by trees, by forest
other means
by gates
portable shields

Icing prevention



Windy places-

Main regions: Akmola, Pavlodar, Karaganda, Almaty, Zhambul, Shymkent

Main regions: Akmola, Pavlodar, Karaganda, Zhambul

Measures to be taken by Company for weather influence prevention

Fences for sand protection



River bank protection work



Snow fences



Vibrapantographs

