

# **“Role of infrastructure – state in transition”**

**Prof. V.A. Dukhovny**

**IV WWF**

**17 March, 2006**

# Infrastructure of irrigation in the states in transition

## Growth Irrigated lands and production in FSU

	<i>1965</i>	<i>1970</i>	<i>1975</i>	<i>1980</i>	<i>1985</i>	<i>1990</i>
<b>Irrigated lands, th. ha</b>	9845	10852	14239	17223	19654	21130
<b>Production, bln. \$ per year</b>	11,61	16,25	21,4	24,1	26,8	
<b>Yield th./ha</b>						
<b>grain</b>	1,92	2,53	3,15	3,29	3,2	
<b>cotton</b>	2,4	2,73	2,93	2,81	2,9	
<b>rice</b>	3,3	3,86	3,93	3,9	4,1	
<b>corn</b>	2,7	3,64	4,78	4,54	5,1	
<b>Annual investment bln. \$</b>	4,612	8,864	13972	15514	17936	

# Situation with irrigated lands on the NIS and Eastern Europe th.ha

	<i>1990</i>	<i>2004</i>	<i>actually irrigated</i>
<b>Russia</b>	5799	3506	2600
<b>Ukraine</b>	2455	1100	700
<b>Uzbekistan</b>	3908	4230	3960
<b>Kazakhstan</b>	2160	1290	1060
<b>Turkmenistan</b>	1240	1760	1700
<b>Bulgaria</b>	1250	40,0	
<b>Czechia</b>	133	10,0	
<b>Germany</b>	500	200,0	
<b>Hungary</b>	300	100,0	
<b>Poland</b>	301,5	83,3	
<b>Romania</b>	3205	850	500

**Present production in irrigated lands 7,6 bln. \$ on the FSU area  
in 3,5 time less!!!**

# But crisis is approaching!

Annual operational expenses for irrigated lands on the 1990 – 60 \$/ha

Present expenses on operation & maintenance 8-10 \$/ha



# Out of work

86 % vertical drainage

43 % subsurface  
drainage



# Growth of irrigated and rainfed crops in China

	<i>China</i>		
	1995	2025	Increment (%)
<b>Water withdrawal (km<sup>3</sup>)</b>	680	845	25
<b>Reservoir storage (km<sup>3</sup>)</b>	1064	1221	15
<b>Basin efficiency</b>	0,54	0,60	11
<b>Non-irrigated consumption (km<sup>3</sup>)</b>	47	98	110
<b>Irrigated area (million ha)</b>	64,1	69,3	8,1
<b>Rainfed area (million ha)</b>	29,5	33,5	13,6
<b>Irrigated yield (kg/ha)</b>	4,747	7,727	62,8
<b>Rainfed yield(kg/ha)</b>	4,169	5,640	35,3