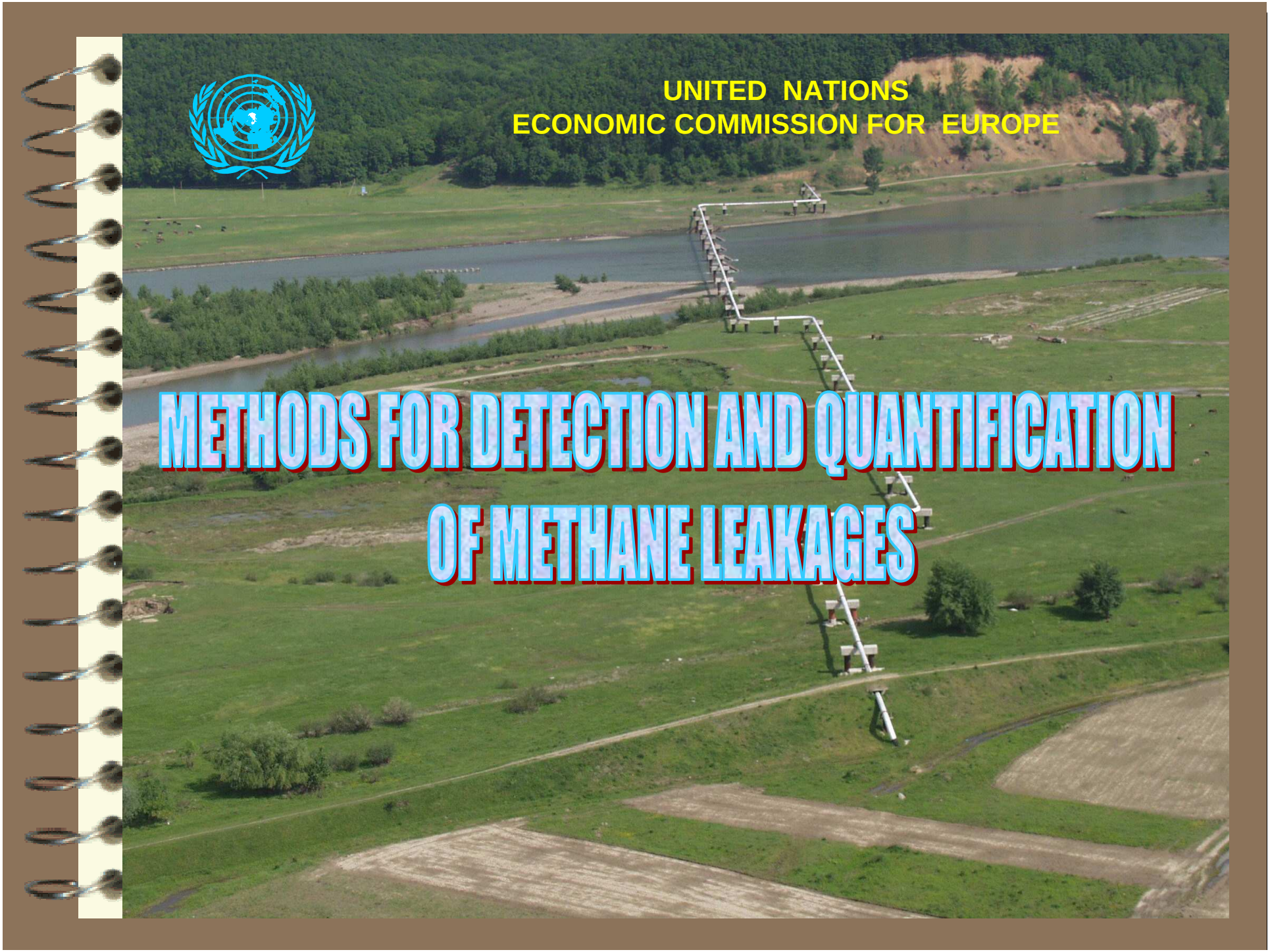

UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE
METHODS FOR DETECTION AND QUANTIFICATION
OF METHANE LEAKAGES

Gas transmission system of Ukraine

Methods for methane detection

Table 1

#	Methods for methane detection	Sections of Gas Industry			
		production	transmission	storage	distribution
1	Visual inspection:				
	- foot				
	- vehicle				
	- by air				
2	F.I.D. (Flame Ionisation Detection)				
3	Semi Conductor Detection				
4	T.C.D. (Thermal Conductivity Detection)				
5	I.R.D. (Infra-Red Detection)				
6	Tunable Diode Laser Spectrometer				
7	Photo Acoustic Detection				
8	Catalytic detectors				
9	Electro Chemical detectors				
10	Tracer gas method				

y. - yes
fr. - frequently applied
inc. - incidently applied
u. - method unknown

Methods for quantification of methane leakage

Table 2

#	Methods for quantification of methane leakage	Sections of Gas Industry			
		production	transmission	storage	distribution
1	Calculation of actual process flow balance				
2	Computer process simulation				
3	Emission factors for standart equipment				
4	Appliance of methane dispersion models				
5	Pressure decay tests in isolated part of distribution system				

y. - yes

n. - no

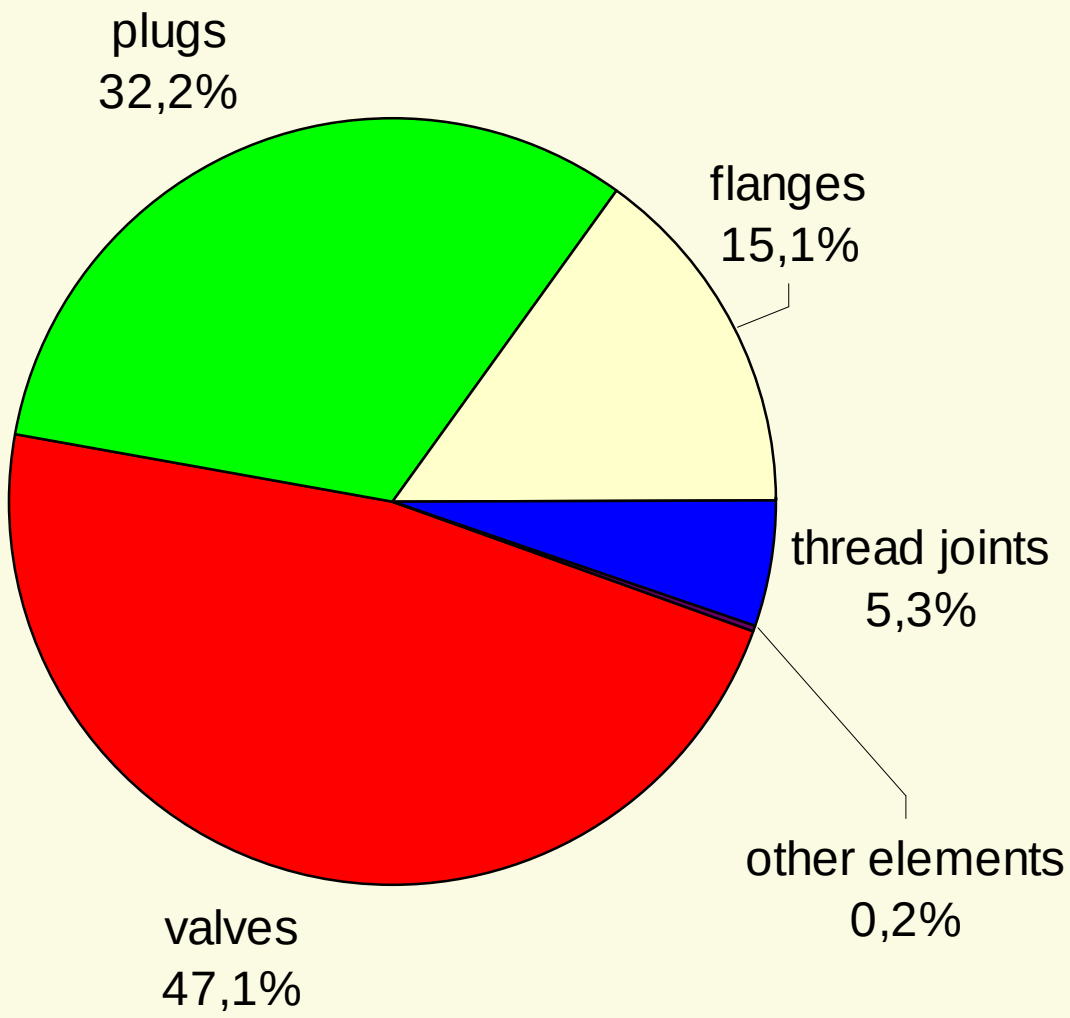
u. - unknown

Methods and technologies to detect methane leakages

Table 3

Methods and technologies to detect methane leakages	Gas industry sector			
	production	transmission	storage	distribution
Replacement of non-hermetic equipment, pipeline sections				
Technologies without gas release from systems				
Polymeric bandings and couplings				
Composite materials to seal lock valves				
Packing materials (mastic etc.) to seal lock valves				
Other - -				

Exemplary structure of gas losses at a CS



Causes of failures at the gas mains (D 1420 mm)