TRENCHLESS TECHNOLOGY A GLOBAL PROSPECTIVE

IAN RAMSAY, UKSTT AND
ISTT BOARD MEMBER

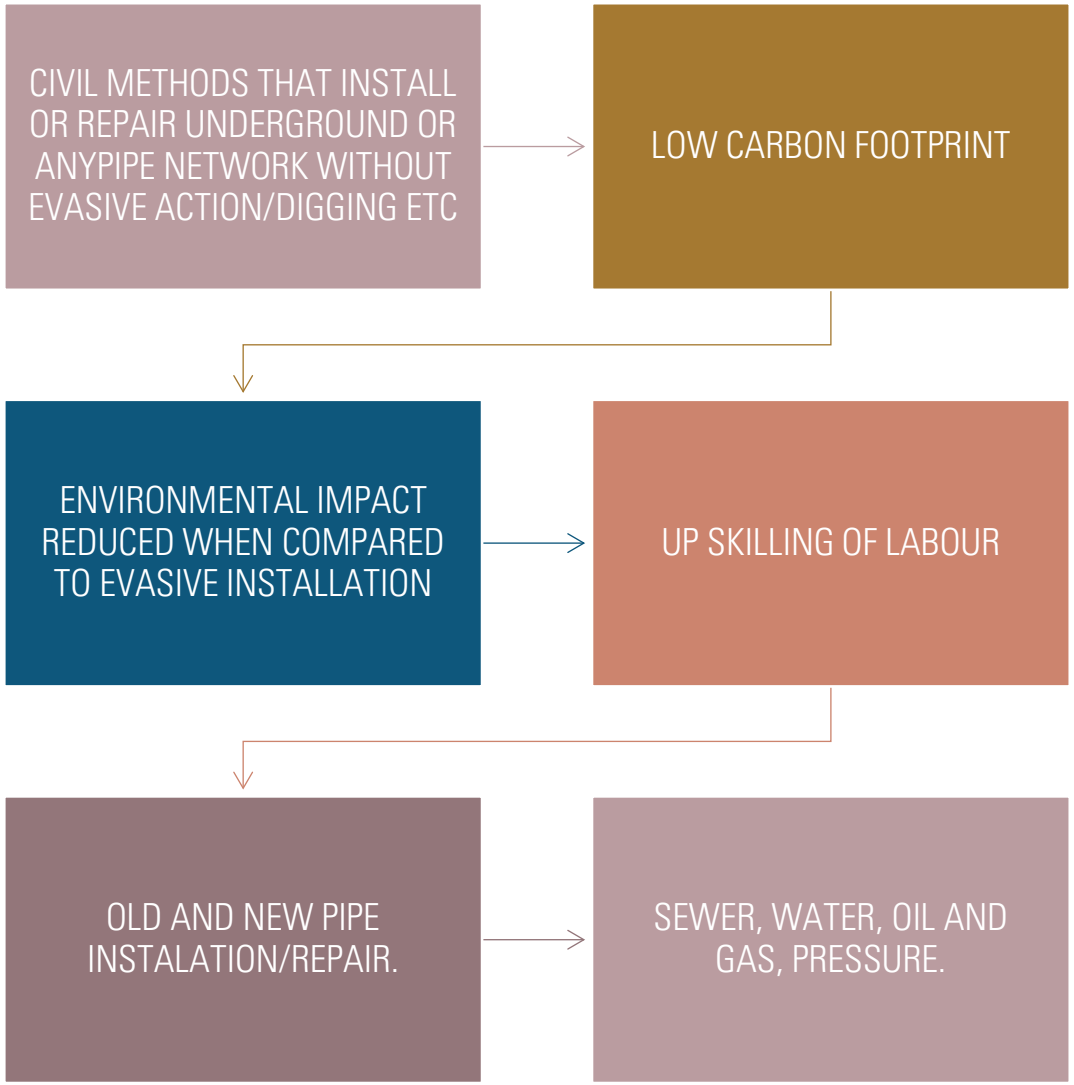
TRENCHLESS GLOBALY

- SINCE THE 1970'S TRENCHLESS TECHNOLOGY HAS GROWN INTO A MULTI BILLION MARKET GLOBALLY
- COUNTRIES AROUND THE WORLD HAVE RECOGNISED THE NEED AS ISSUES WITH LOCAL ASSETS AND NETWORKS INCREASE.
- INNOVATION AND A BETTER UNDERSTANDING OF THE PROBLEMS AND CAUSES HAS ENABLED TECHNOLOGIES TO DEVELOP
- TESTING AND PRODUCT STANDARDS MAINTAIN A SUSTAINABLE AND A LONGTERM SOLUTION

WORK AS A TEAM

- ENGINEERS
- PLANNERS
- ECONOMISTS
- ENVIRONMENTALISTS
- CONTRACTORS
- MUNICIPALITIES
- SERVICE PROVIDERS

TRENCHLESS TECHNOLOGY

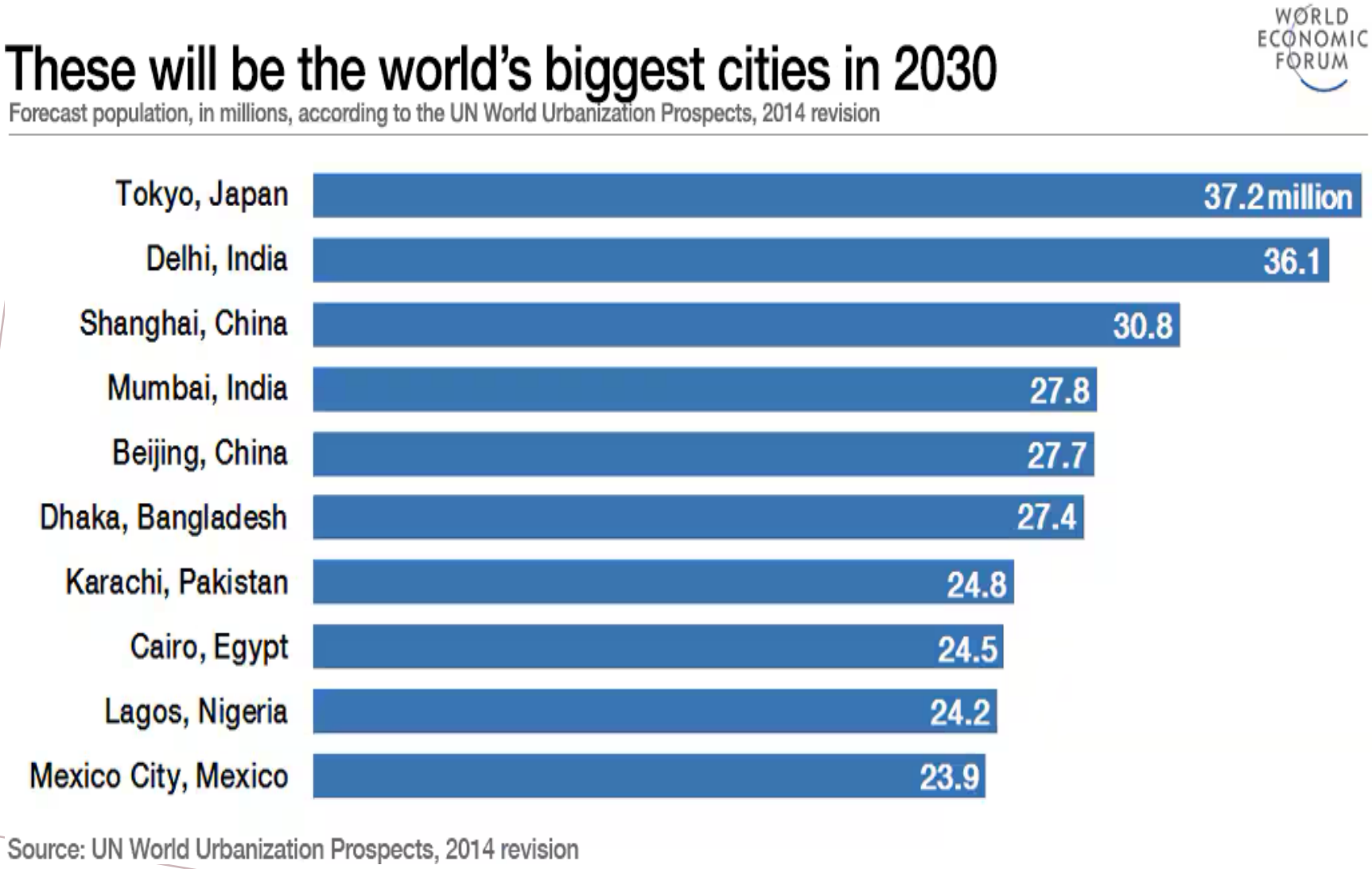


INTERNATIONAL SOCIETY FOR TRENCHLESS (ISTT)

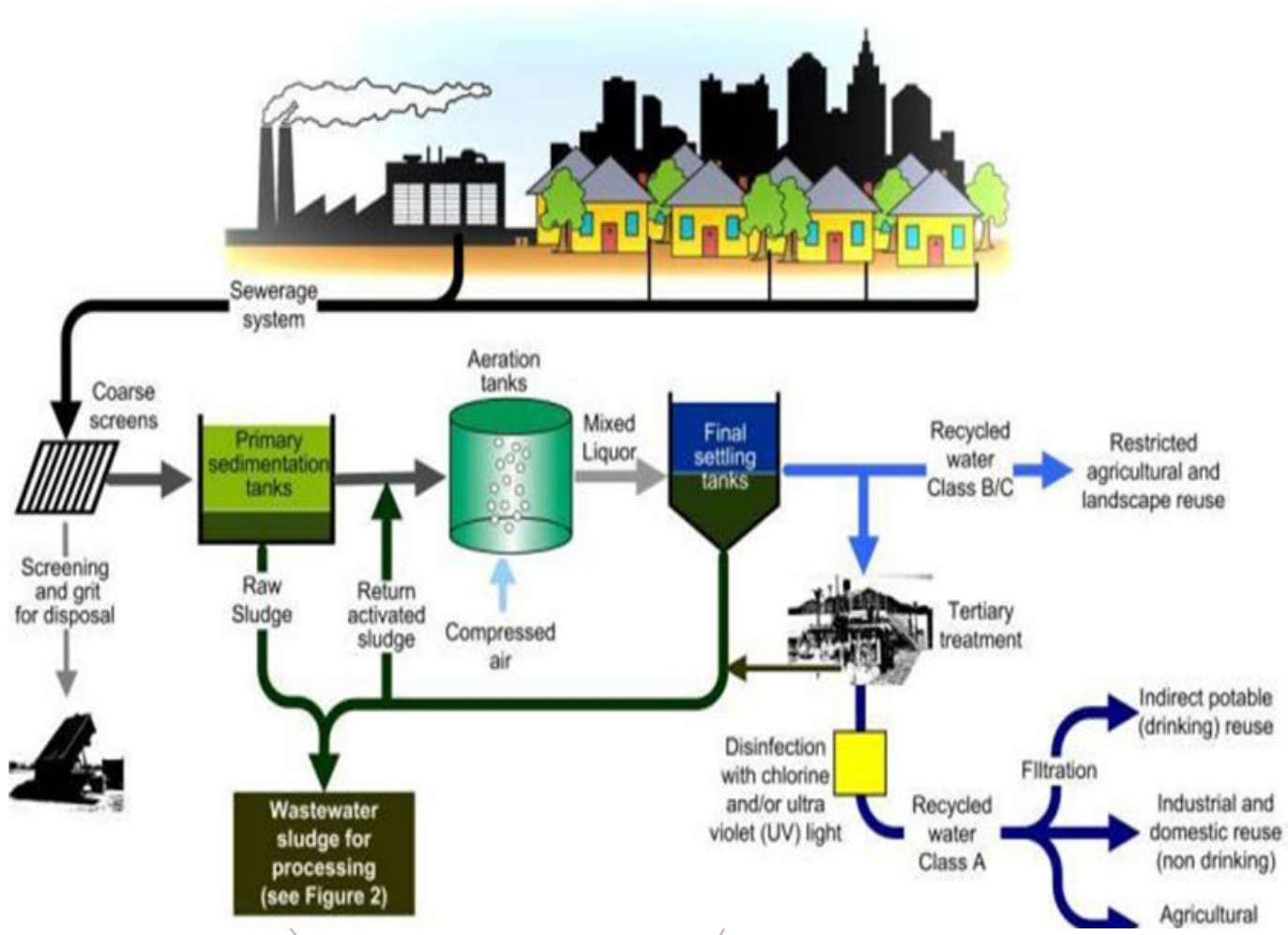
- Established in 1986
- 28 affiliated societies
- Advancing the science and practice of trenchless technology , the study, training and research.
- www.istt.com
- Published Papers (hundreds on web site)
- Webinars and conferences


Canada
Sweden
Finland
Norway
Ireland
Denmark
Lithuania
Poland
Russian Federation
United Kingdom
Czech Republic
United States
Netherlands
Germany
Austria
Ukraine
France
Bulgaria
Spain
Italy
Romania
Turkey
China
Japan
North Atlantic Ocean
Taipei
Hong Kong
Mexico
Malaysia
Singapore
Latin America
Brasil
South Africa
South Atlantic Ocean
Indian Ocean
Australia

THE WORLDS MEGA CITIES



STANDARD SEWER SYSTEM



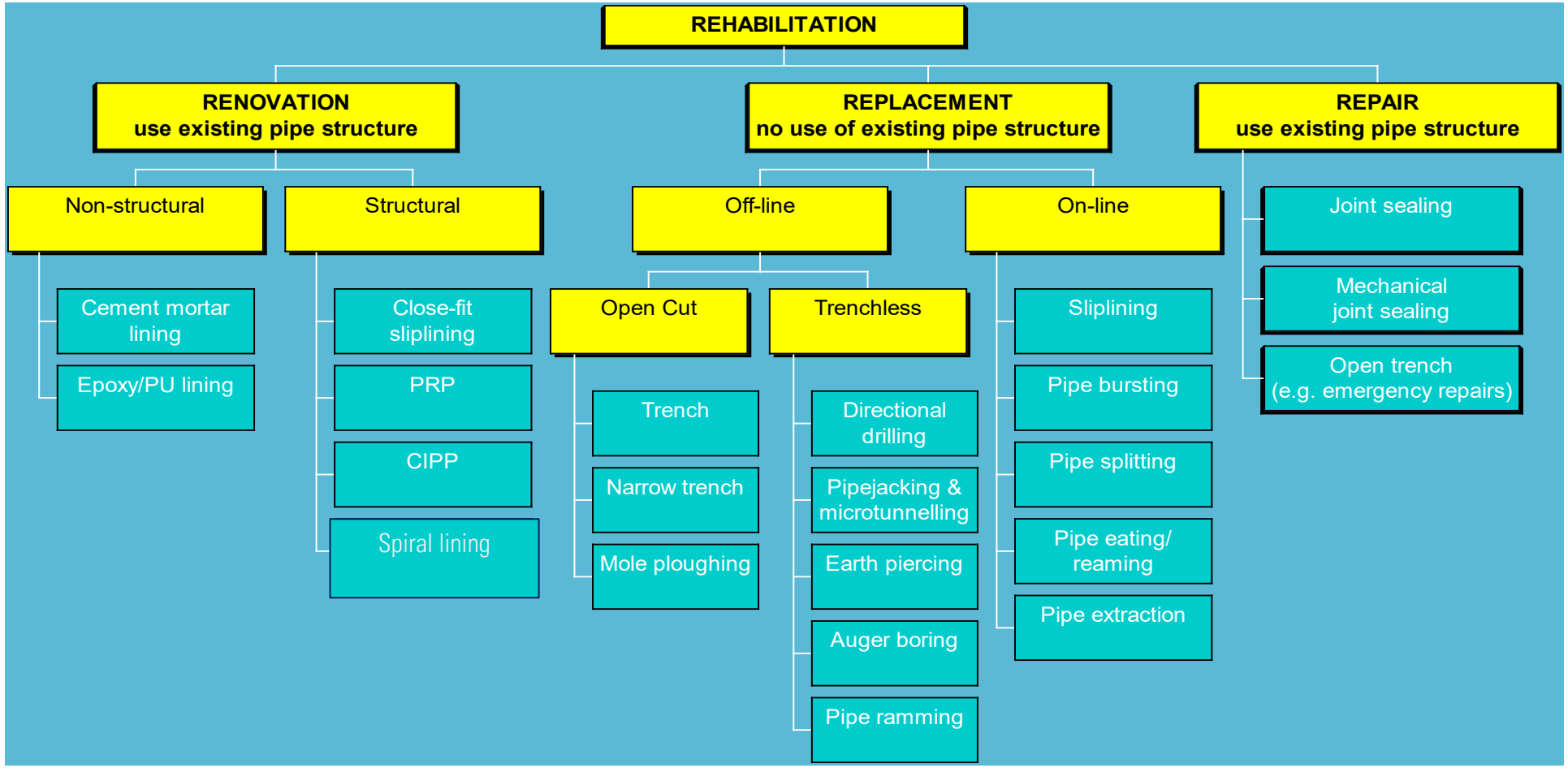
WHEN THINGS GO WRONG

- Sink Holes
- Loss of water services
- Traffic Chaos
- Infrastructure Loss
- Water Loss
- Increased costs
- Environmental impact
- Population Health impact

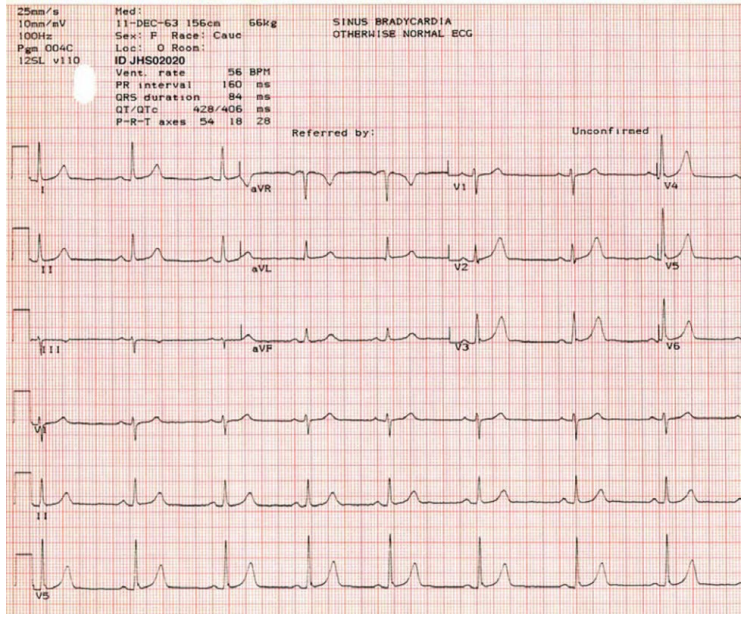
POLUTION

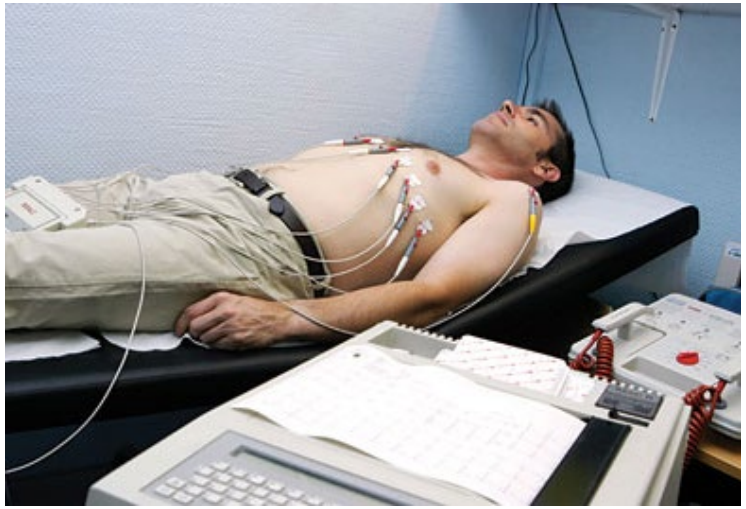
RIVERS
LAND
SEA

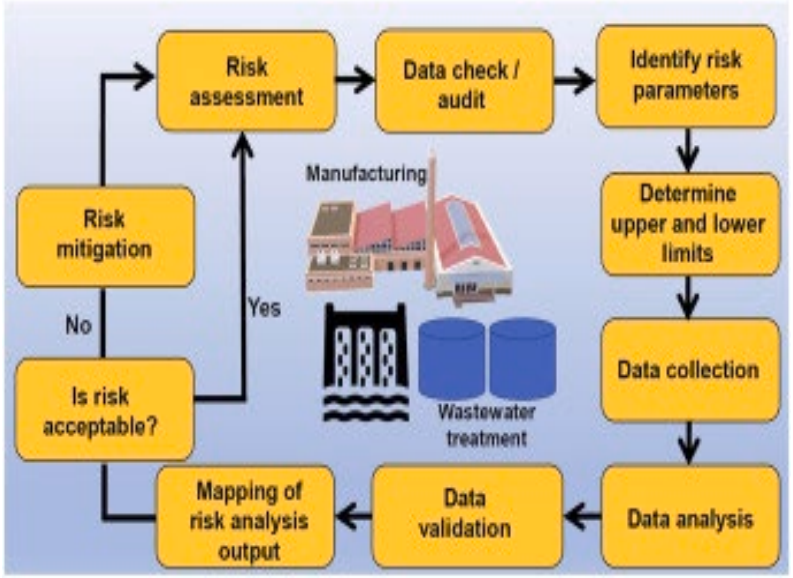
WHAT IS TRENCHLESS



TRENCHLESS TECHNOLOGY



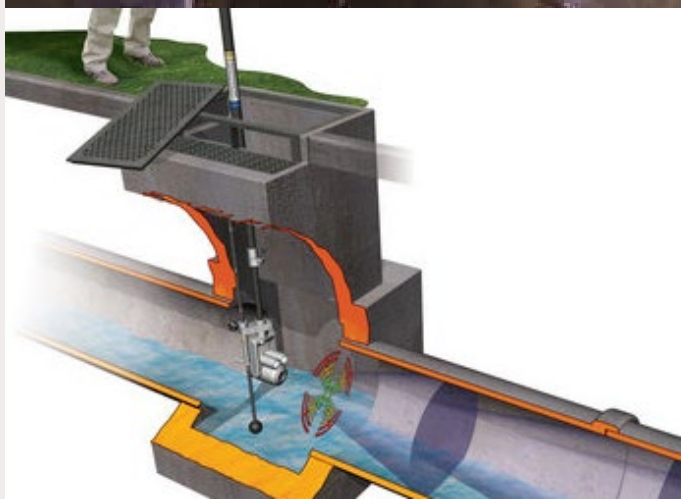


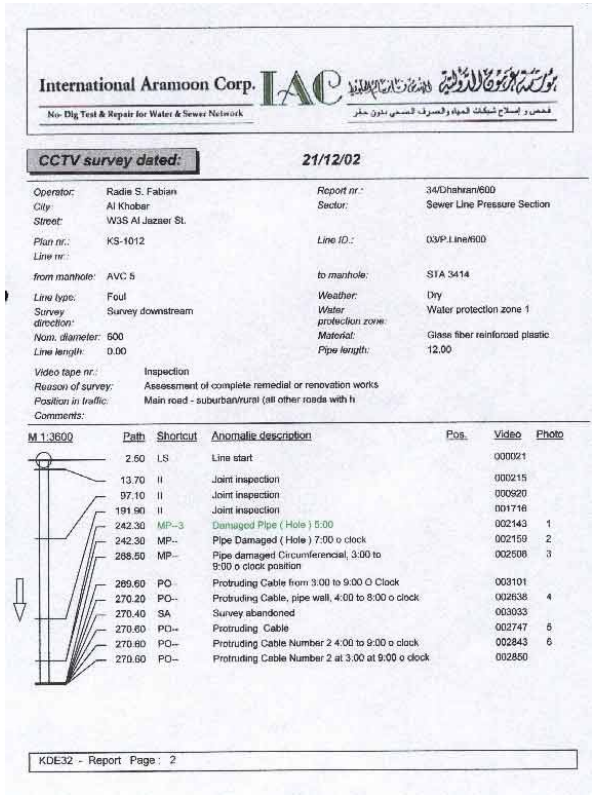


INSPECTION, CONDITION ASSESSMENT

VISUAL OPTIONS WITH CAMERAS

- ADDITIONAL SURVEY METHODS
-
- LIDAR
- LASER SURVEY
- EMC DIAGNOSITICS
- AIR AND PRESSURE TESTING
- AI OPTIONS





International Aramoon Corp. IAC

No- Dig Test & Repair for Water & Sewer Network

CCTV survey dated: 21/12/02

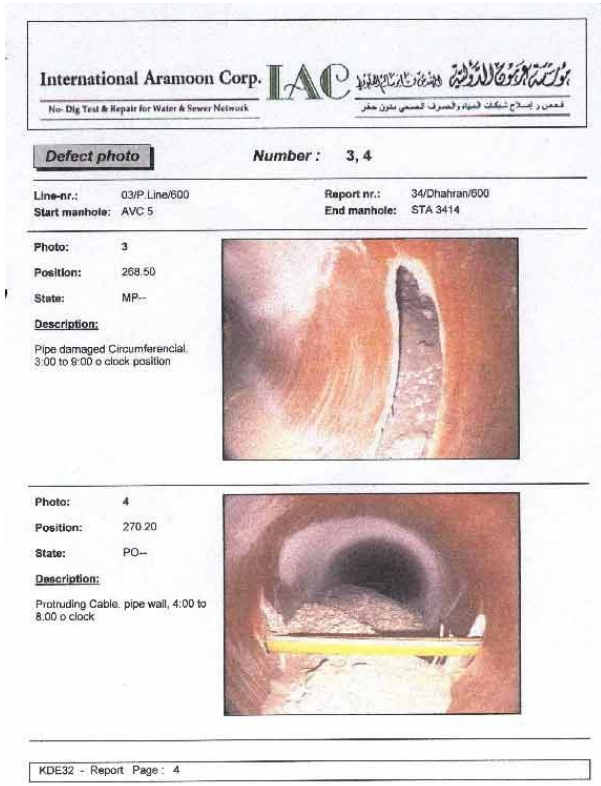
Operator:	Radie S. Fabian	Report nr.:	34/Dhahran/600
City:	Al Khobar	Sector:	Sewer Line Pressure Section
Street:	W3S Al Jazzer St.		
Plan nr.:	KS-1012	Line ID.:	03/P.Line/600
Line nr.:			
from manhole:	AVC 5	to manhole:	STA 3414
Line type:	Foul	Weather:	Dry
Survey direction:	Survey downstream	Water protection zone:	Water protection zone 1
Nom. diameter:	600	Material:	Glass fiber reinforced plastic
Line length:	0.00	Pipe length:	12.00

Video tape nr.: Inspection
Reason of survey: Assessment of complete remedial or renovation works
Position in traffic: Main road - suburban/rural (all other roads with h
Comments:

M 1:3600

Path	Shortcut	Anomalie description	Pos.	Video	Photo
2.50	LS	Line start		000021	
13.70	II	Joint inspection		000215	
97.10	II	Joint inspection		000920	
191.90	II	Joint inspection		001716	
242.30	MP--3	Damaged Pipe (Hole) 5:00		002143	1
242.30	MP--	Pipe Damaged (Hole) 7:00 o clock		002159	2
268.50	MP--	Pipe damaged Circumferencial, 3:00 to 9:00 o clock position		002506	3
269.60	PO-	Protruding Cable from 3:00 to 9:00 O Clock		003101	
270.20	PO--	Protruding Cable, pipe wall, 4:00 to 8:00 o clock		002636	4
270.40	SA	Survey abandoned		003033	
270.60	PO--	Protruding Cable		002747	5
270.60	PO--	Protruding Cable Number 2 4:00 to 9:00 o clock		002843	6
270.60	PO--	Protruding Cable Number 2 at 3:00 at 9:00 o clock		002850	

KDE32 - Report Page : 2



International Aramoon Corp. IAC

No- Dig Test & Repair for Water & Sewer Network

Defect photo **Number :** 3, 4

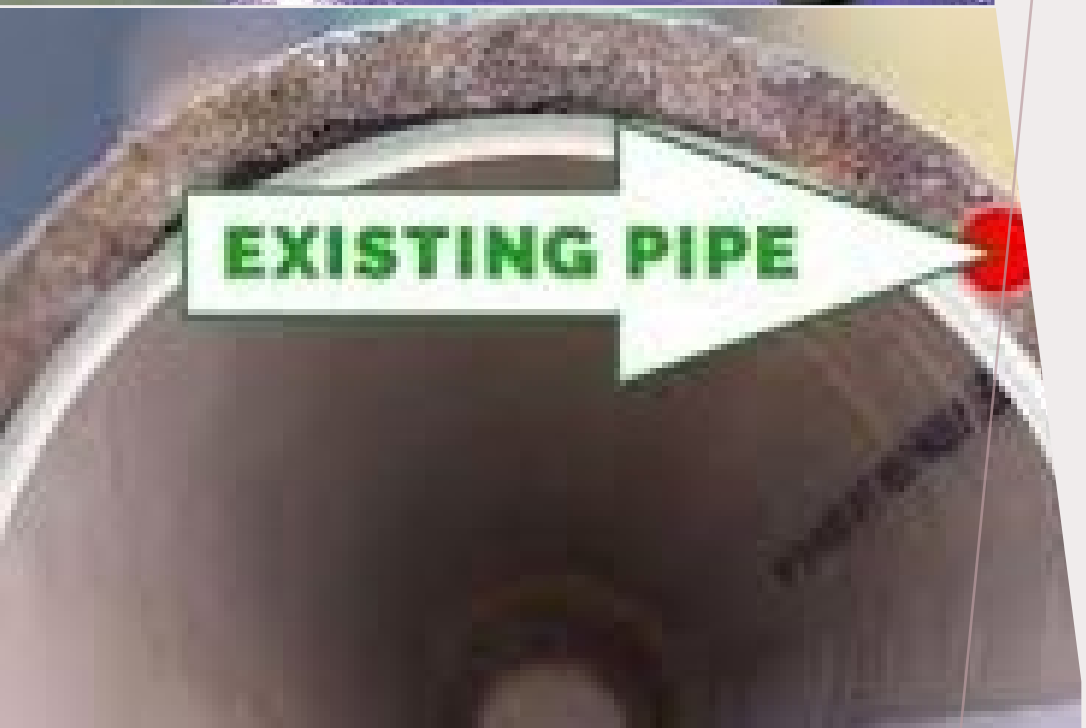
Line-nr.:	03/P.Line/600	Report nr.:	34/Dhahran/600
Start manhole:	AVC 5	End manhole:	STA 3414

Photo: 3
Position: 268.50
State: MP--
Description:
Pipe damaged Circumferencial, 3:00 to 9:00 o clock position

Photo: 4
Position: 270.20
State: PO--
Description:
Protruding Cable. pipe wall, 4:00 to 8.00 o clock

KDE32 - Report Page : 4

CCTV SURVEYS



CURED IN PLACE PIPE (CIPP)

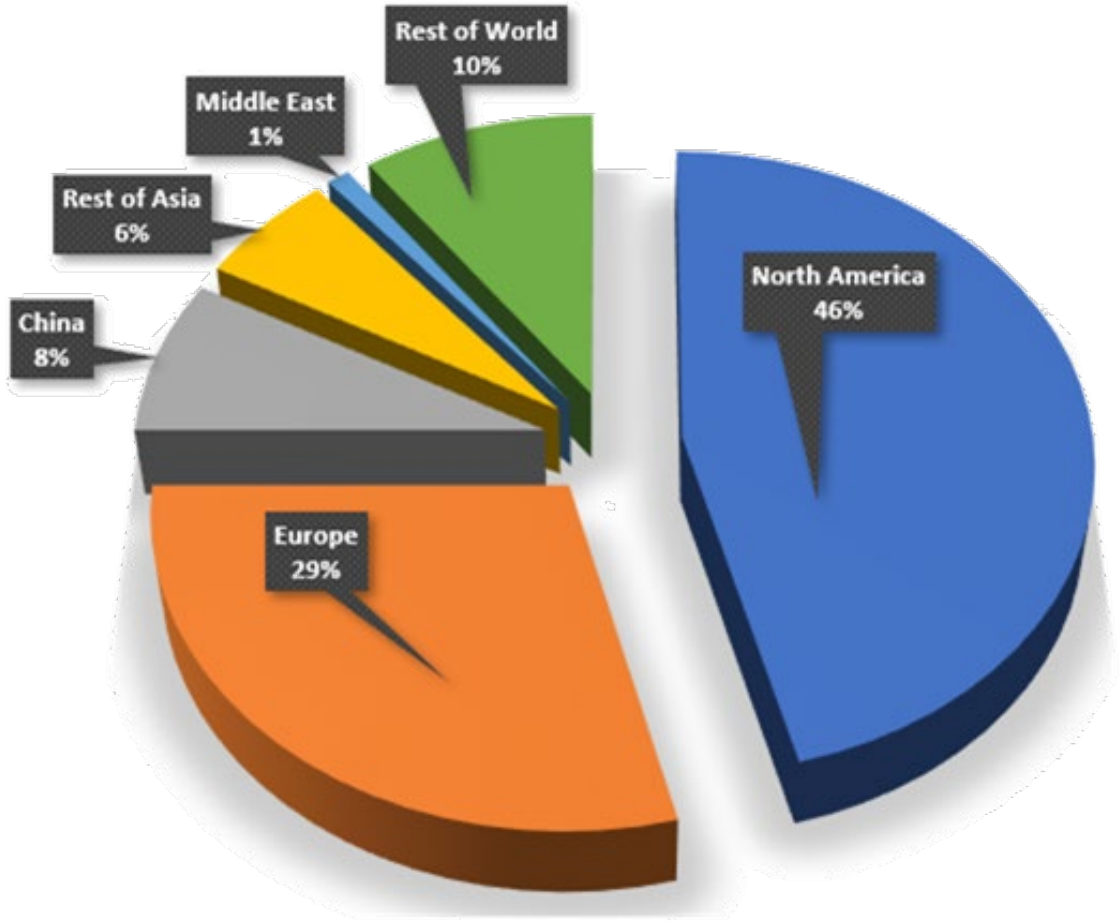
Most materials used on sewer networks are **manufactured in a factory under full QA** & testing regimes and are installed on site. (FFRP is a good example).

Sewer lining using cured in place is a manufacturing process that is **carried out on site** by a Contractor in a similar way to structural concrete. The liner and resin, being inserted into the the pipe and then cured (hardened).

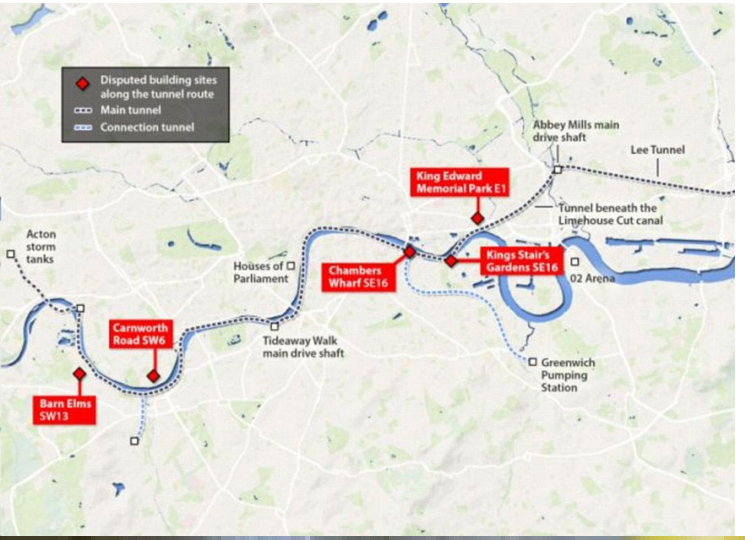
The need for correct testing regimes are key to ensure the final product meets the specification.

- A snapshot of markets share …

CIPP Installation
Gravity Sewers - 2021
(+/- 5%)



- Total 17,000 km
- Estimated installed value around $3-3.5 billion



NEW THINKING USING TRENCHLESS THAMES TIDEWAY

CONCLUSIONS, WHY TRENCHLESS

- Ageing Infrastructure
- Global growth in population and demand on services
- Impact of climate change on networks
- Technologies and testing regimes exist to improve networks and assets and offer sustainable solutions
- Education, better understanding, working together for the best use of resources