Steam Specialist Company
Quality & Innovation
Products & Solutions

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Outline

- **Company Introduction**
- **Initiatives, Outcomes & Lessons Learnt**
  (JITMAP activities)
- **Q & A**

A Journey of 70+ years

Founded: 1950, Kakogawa, Japan

TLV
Trouble Less Valve
ISO 9001 : acquired – 1991
ISO14001: acquired – 1997
ASME N : acquired – 2010

100% Customer Satisfaction

Quality First & Incomparable Originality – 1400+ Patents

Incomparable Originality

Patented Products & Systems

PRV with Cyclone Separator & Steam Trap Built In

Power Trap for Stall Conditions

Free Float Steam Trap

TM5 Steam Trap Diagnostic Tool

Patents held by TLV

1,387

（as of March, 2018）

MISSION is to Help

Build a Low Carbon Society and Create "Peace of Mind" in plants through

SSOP®

Steam System Optimization Program

A Sustainable Asset Management Program

which Improves Safety, Reliability & Profitability by Continuously Optimizing Performance of the Entire Steam System through Visualization based on "Condition Monitoring and Timely Consulting & Engineering Services" to Minimize Condensate Problems, Energy Losses and CO_2 Emissions

TLV® SteamWorld®

Recognition - Energy Conservation Grand Prize 2021

2021

ENERGY CONSERVATION GRAND PRIZE

2021
Minister of Economy, Trade and Industry (METI) Award
Product/Business Model Category

Awarded to

iBPSSM.net®

Presented by the
Energy Conservation Center, Japan

iBPSSM.net®

Innovation of steam-using equipment management through wireless monitoring

TLV : 3 times winner of this award

2019

ENERGY CONSERVATION GRAND PRIZE

FY2019
Chairperson's Prize
Product/Business Model Category

Awarded to the
CES.Survey

Presented by the
Energy Conservation Center, Japan

2009

2009 Grand Prize for Excellence in Energy Efficiency and Conservation
(Association Category)
"Director-General's Prize, the Agency for Natural Resources and Energy"
[Joint winner with Nippon Petroleum Refining Company]

Reduction in Steam Losses from 100,000 Steam Traps

TLV

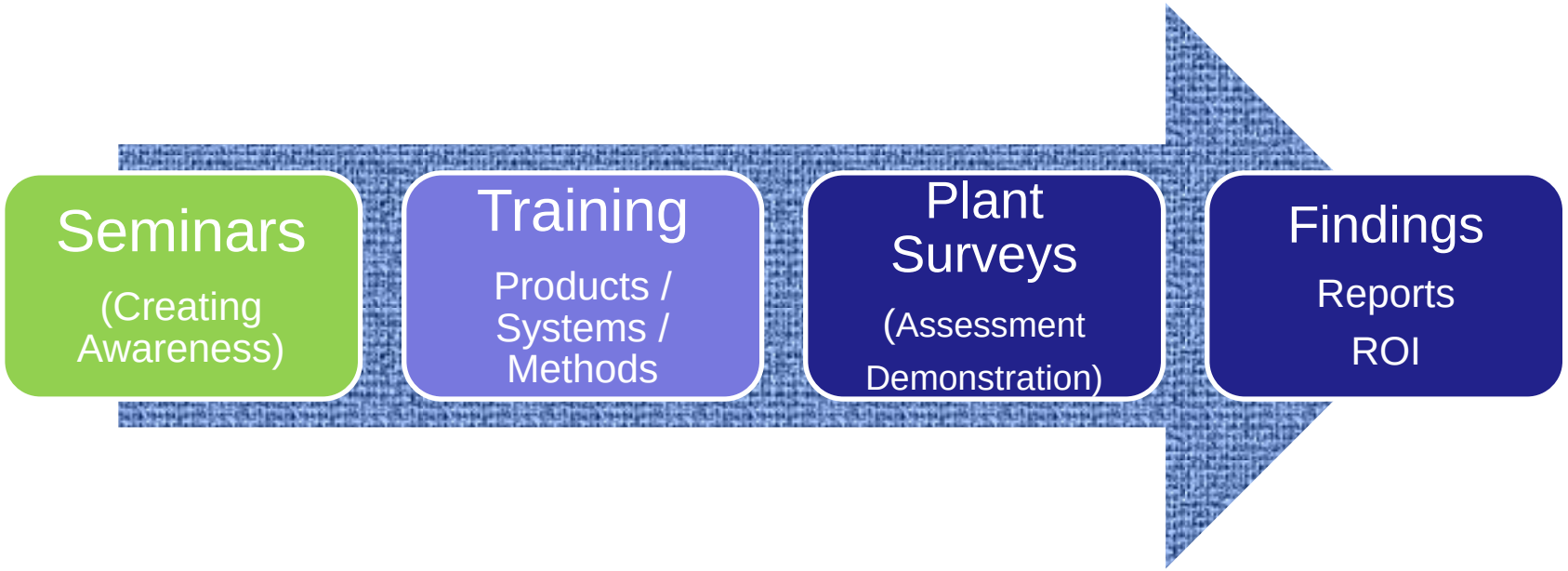
(Sponsored by Ministry of Economy, Trade and Industry)
2009 "Grand Prize for Excellence in Energy Efficiency and Conservation" (Association Category)
Quoted award-winning case report issued by the Energy Conservation Center

Objective, Framework & Activities

Objective:

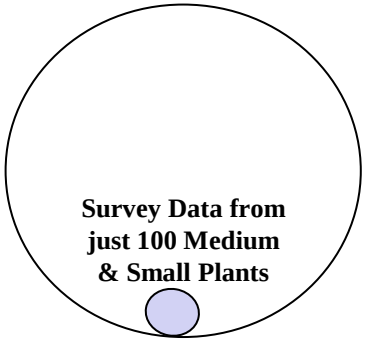
To provide a platform for replication of successful Japanese Low Carbon Technology / Systems & Methods to improve Steam Systems.

- Improving Process Efficiency,
- Avoid unwanted shutdowns,
- Energy Conservation
- Reduce CO2 emissions
- Conserve Water



Findings & scope for improvements

Number of Medium & Small Size plants surveyed Approx. 100 (JITMAP & overall TLV surveys)



Approx. CDL Population : 25,000

Failure Rates:

Cold / Blocked: 17%

Leaking : 41%

Total Losses due to CDL Failure: INR 100 Cr / Year !

CO2 emission / Year by leaking Traps: 36,500 Ton / Year

Water wastage: 27,000 m3/year (Treated water)

Helping towards Net Zero Goal & Conserving Water

Case Study – Large Oil Refinery in India

Survey of a section of the plant

Initial SSOP Assessment - Results

CES Survey (Steam System Balance & BPSSM)	Opportunities	: 19 items
	Energy Savings	: 14 items
	Safety / Reliability	: 5 items
	Steam Savings	: 181 t/d (7.6 t/h)
	Monetary Savings	: 172 million INR/y
	"Quick Hit" (7 items)	: 55 t/d (2.3 t/h)
		: 53 million INR/y
BPSTM (CDL Survey)	Steam Savings	: 9.8 t/d
	Failure Rate	: 54.8%
	Monetary Savings	: 11 million INR/y
SonicMan Survey (Gas Leak Survey)	Monetary Savings	: 6.3 million INR/y
	Total Savings	: 189 million INR/y

※Merit calculations based on:
Steam : HP 3520 INR/t
MP 3200 INR/t
LP 2880 INR/t

SSOP® Value (Simulated for Entire Plant)

Potential : 1.54 billion INR/y

CO_2 equiv. 97,000 t-CO_2/y & Safety/Reliability Improvements

SSOP®	Initial SSOP Assessment	Potential
CES® Survey Comprehensive Steam System Analysis	Surveyed Steam consumption : ~2200 t/d Steam applications : 31 Steam savings : 181 t/d Opportunities : 19 **Savings : 172 mil. INR/y** **Safety/Reliability**	**599 mil. INR/y** **Safety/Reliability** Steam savings : 653 t/d (6.4% of total plant steam) ("Quick Hit": 242 mil. INR/y)
BPSTM® Survey Condensate Discharge Location Management	Surveyed Locations : 91 CDLs Failure Rate : 54.8% Steam savings : 9.8 t/d **Savings : 11 mil. INR/y** Eliminate condensate problems	**931 mil. INR/y** Steam savings : 841 t/d Eliminate condensate problems and steam loss
SonicMan® Survey Air/Gas Leak Survey	Surveyed : ~1.2% of plant area Leaks : NG 1.1 Nm^3/h Air 18.6 Nm^3/h Steam 1.7 kg/h **6.3 mil. INR/y** **Safety Improvements**	**18 mil. INR/y** **Safety Improvements**

Findings

Is there scope for improvement ? Tremendous !

Can we do something in a time bound manner? Yes indeed

Will it be beneficial for both (Users in India & Japanese company)? Yes

Challenge is to find “ How”

Learnings / Challenges

Implementation?
High cost of poor quality !
Lack of Appreciation / Understanding of superior technology

100 years old Archaic IBR Rules & Regulations make manufacturing unnecessary expensive & resulting in higher cost to the users! (Unnecessary Energy Consumption / Steel Industry / Highest CO2 emission / This Regulation creates more CO2 emission / Hundreds of casting/forging manufacturer, vessel manufacturers !)

Procurement Processes don't give any advantage to the products of superior technology and quality !

Suggestions on way forward

1. Effective implementation is the key to success.

To explore some mechanism whereby IGES+TERI stay engaged for longer time to oversee the implementation and review.

2. Internationally accepted standards (such as ASME etc) should be accepted in India as well.

3. Government of India & Japan should facilitate and support the effective implementation to demonstrate and prove the benefits of Low Carbon Technology (To make real progress towards Net Zero Goal)

4. Procurement policies should also consider superior technologies & quality not just price in decision making.

Thank You