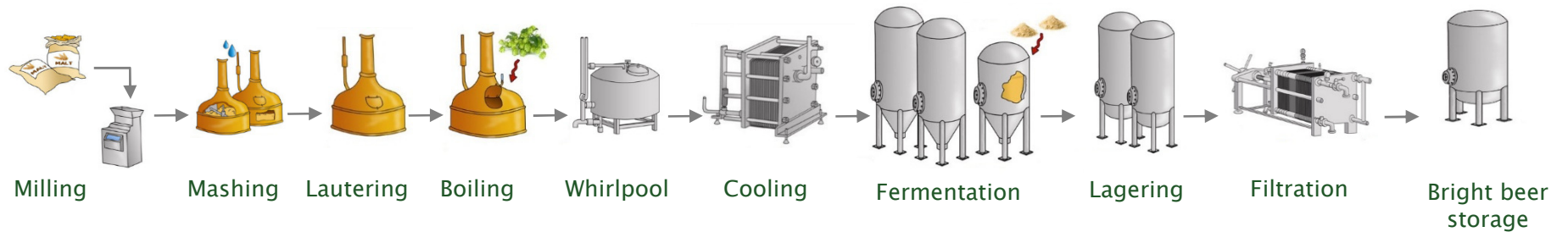


Heineken and Process Safety

Process Safety congress, Dordrecht

Dietmar Laske
Sr. Global Lead Safety
Heineken Global Production

Brewing and process safety



Malt dust
explosive
atmosphere

Steam, Super
Heated Water
9 bar, 160 °C
(bio) gas

CO₂ gas, liquid
16 bar, > -56 °C

NH₃ gas, liquid
11 bar, -33 °C

10–20 ton/hrs steam
or Super Heated Water
1–3 boilers/Combined
Heat Power

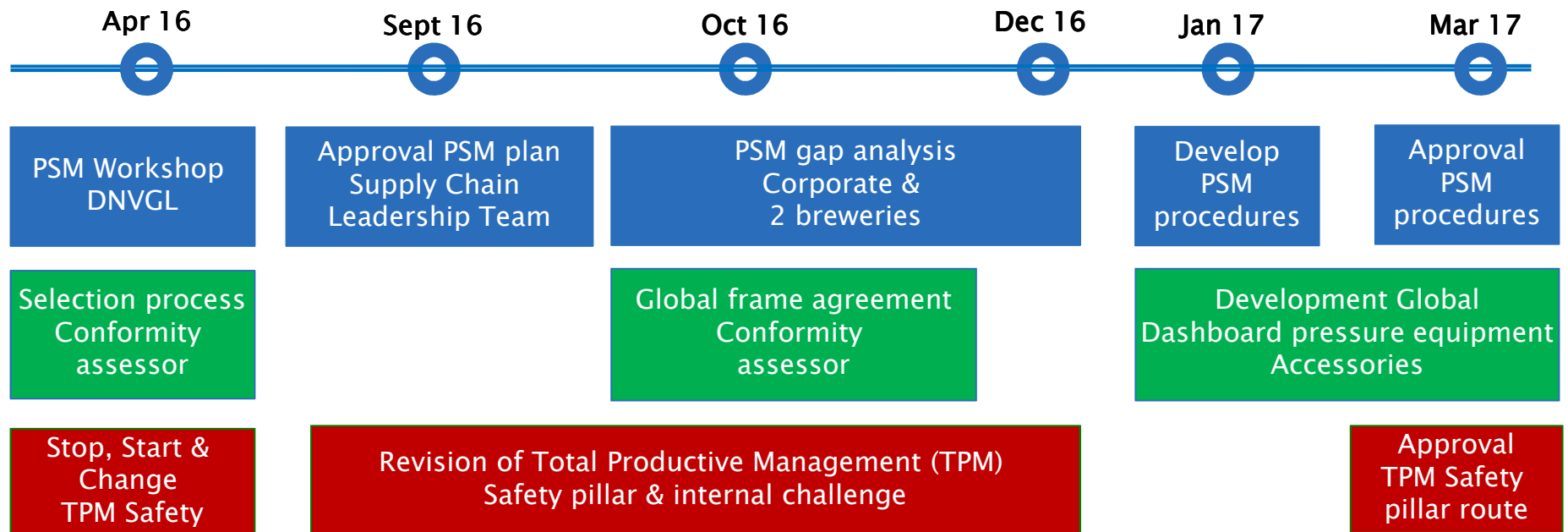
10–100 tons
CO₂

5–80 tons NH₃

Boiler accident Brazil



Timeline actions (investigation started immediately)

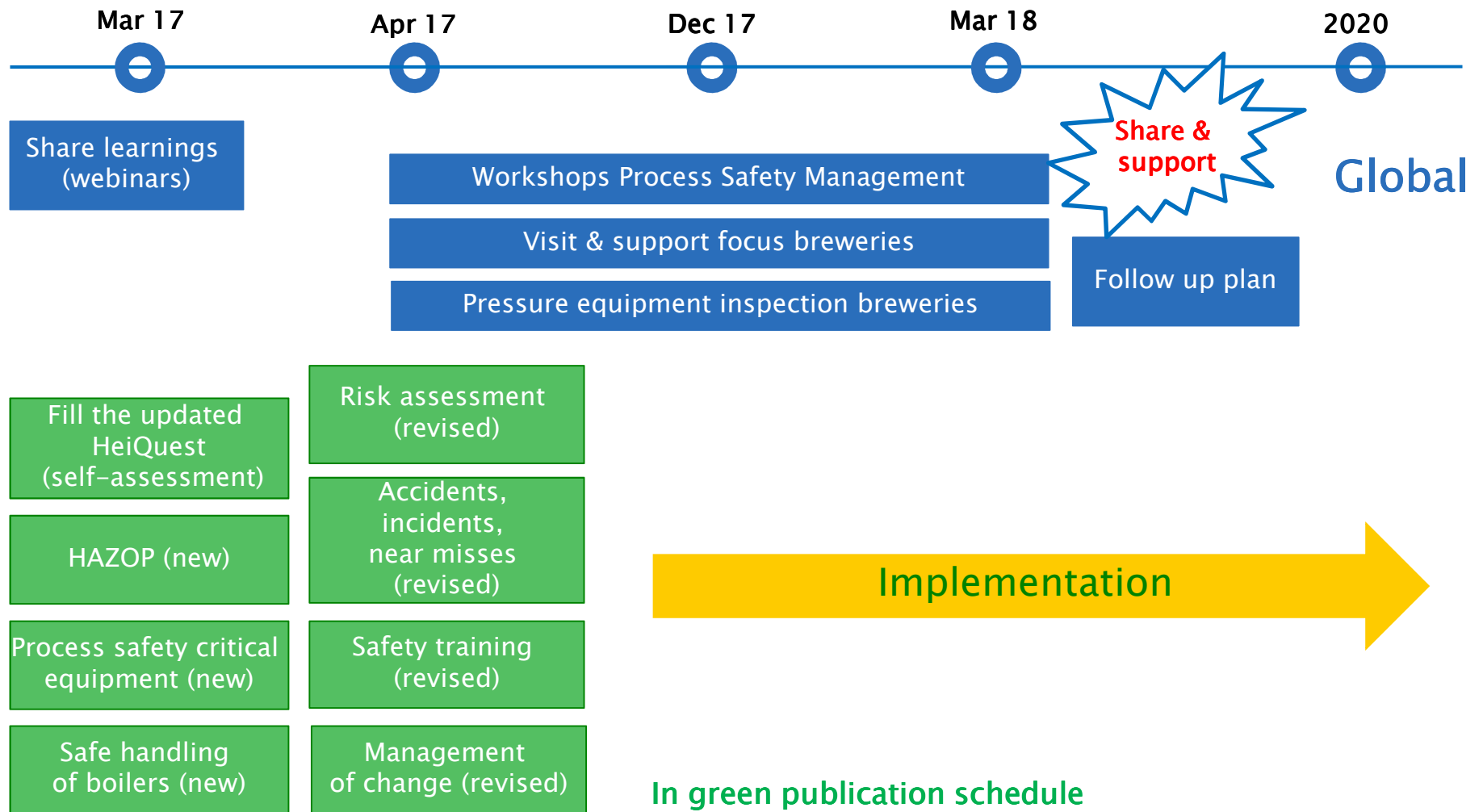


Gap analysis Process Safety

DNV·GL

General (general structure/ set up of management system)	
Process Safety Leadership	
Management of Change	
Asset Integrity Management	
Process Safety Information	
Process Hazard Analysis	
Risk management	
Operating Procedures	
PSM in Projects	Not in scope
Pre-Start-Up Safety Review	
Training and Competency	
Incident Investigation	
Emergency Preparedness	
Non-Routine Work Authorization	
Contractor Management and Procurement	
Measurement and Review	

Continue Timeline





Implementation schedule for process safety critical equipment (example)

Type of equipment (including vessels, pipework, all accessories)	Critical yes/no	Priority		Remarks
		1 year after issuing date	Within 3 years after issuing date	
Boilers	Yes	✓		Implementation is reached when: <ul style="list-style-type: none"> • An inventory of all process safety critical equipment is available; • A check on available documentation is conducted and gaps are identified; • A conformity assessment is executed and improvement actions are identified; • An improvement plan is available, Periodical inspection by an approved third party is planned
NH₃ cooling plants	Yes	✓		
CO₂ plants	Yes	✓		
(Bio-) gas installations	Yes	✓		

Heineken DNVGL Pressure Equipment assessment

Pressure equipment assessment
summary

 																										
INSPECTION REPORT PRESSURE EQUIPMENT																										
Inspec date																										
Country																										
Prod. Unit																										
Opco																										
DNVGL Proj #																										
Inspection team																										
	<table border="1"> <thead> <tr> <th></th> <th style="background-color: #FFFF00;">EXTERNAL</th> <th style="background-color: #FF8C00;">MAINTENANCE</th> <th style="background-color: #ADD8E6;">DOCUMENTATION</th> <th style="background-color: #90EE90;">INTERNAL</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Steam</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> </tr> <tr> <td style="text-align: center;">CO₂</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> </tr> <tr> <td style="text-align: center;">NH₃</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> </tr> <tr> <td style="text-align: center;">Compressed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> <td style="text-align: center;">No action needed</td> </tr> </tbody> </table>		EXTERNAL	MAINTENANCE	DOCUMENTATION	INTERNAL	Steam	No action needed	No action needed	No action needed	No action needed	CO ₂	No action needed	No action needed	No action needed	No action needed	NH ₃	No action needed	No action needed	No action needed	No action needed	Compressed	No action needed	No action needed	No action needed	No action needed
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Compressed	No action needed	No action needed	No action needed	No action needed																						
	Short term action immediately																									
	Mid term action (action in 1 week - 1 month)																									
	Long term action (more than 1 month)																									
	No action needed																									
General conclusion:																										

Revised TPM Safety pillar route from Foundation to World Class

In this phase the organisation is building the foundations to be able to achieve and sustain zero fatality

- **Role & responsibilities**
- **LSR gap assessment and action plan**
- **Process Safety gap and action plan**
- Competence development
- Safety inspection done mostly by managers
- Contractor management
- Emergency management
- ARISO reporting
- Daily / Monthly /Yearly control system (focus on LSR breaches, PSM barrier failures, PSM events, pressure equipment inspection plan, PSM maintenance log, etc.)

STEP 0,1,2

Foundation

In this phase the organisation is driving for continuous improvement to achieve and sustain zero accidents and zero incidents.

- **Sustain and improve STEP 0 and 1**
- Occupational health and safety accidents and incidents analysis (5 why, JSA, etc.)
- Extensive use of TPM methodology and tools (**Operational Risk Reduction team**)
- **Preventive observation** done by managers, supervisors and specialists (Behavioural Based-Safety progression)
- Expansion of use of **Last Minute Risk assessment**
- Daily/Monthly/Yearly control system (safety tags, NMs, safe/unsafe behaviours, etc.)
- Safety Culture Survey

STEP 2,3,4

Advanced

In this phase the organisation achieve zero occupational diseases and become a great place to work.

- **Sustain and improve STEP 0,1,2,3**
- **Microclimate, work-related stress ergonomic and workstation / workplace posture**
- **Wellbeing program**
- Safety is part of the DNA and what is practiced is consistent.
- **Peer to peer observations and self-observations**
- Interdependent culture: you do not need to drive safety hard, because the environment makes you compliant.
- Daily / Monthly /Yearly control system including Health monitoring system

STEP 4,5

Safety World Class



HEINEKEN