

Discharge Data Summary Report

MARCH 2017
SUSTAINABLE CHEMICALS MANAGEMENT (SCM)



1

Introduction & Methodology

Introduction

Since 1841, our family owned company has put serving our customers and local communities first. Today, this means striving to do business sustainably: everyday, everywhere, for everyone.

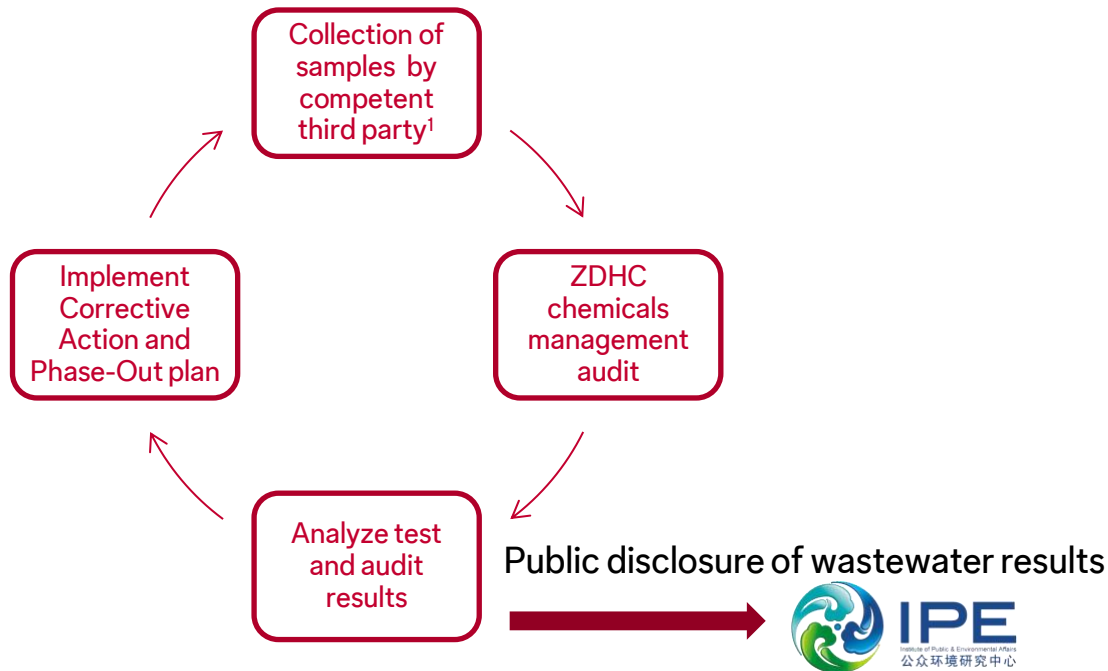
An important part of this commitment is to achieve a zero discharge of hazardous chemicals (ZDHC) in the supply chain by 2020. In 2015-16, C&A rolled out its Sustainable Chemicals Management (SCM) program to 52 facilities with wet processing. Throughout FY 2016/17, 108 production units have been tested as part of the roll-out of the C&A Sustainable Chemicals Management (SCM) program. The wastewater test is conducted alongside SCM audits in order to assess facilities performance holistically and identify areas of on-site improvement, chemical management practices . The purpose of the test is to assess the conformance of wastewater to the ZDHC Wastewater Guidelines.

The purpose of this report is to communicate the Wastewater Discharge Trends of the C&A Supply Chain as conducted by the Sustainable Chemicals Management (SCM) program. The report serves to act as a progress indicator of current performance and will be further enhanced with future data in order to monitor trends and progress.

C&A releases this information as part of our commitment to the Right to Know principle.

Methodology

- Objective: To understand the status quo by undertaking wastewater samples and conducting Sustainable Chemicals Management audits at 111 nominated fabric mills, laundries and printers for C&A. Out of these, 108 conducted wastewater testing whilst the others were excluded due to having no process wastewater or sharing the same effluent treatment plant.
- Environmental samples were tested based on the 16 chemical categories and 266 analytes outlined in the ZDHC Wastewater Guidelines.



Chemical Classes

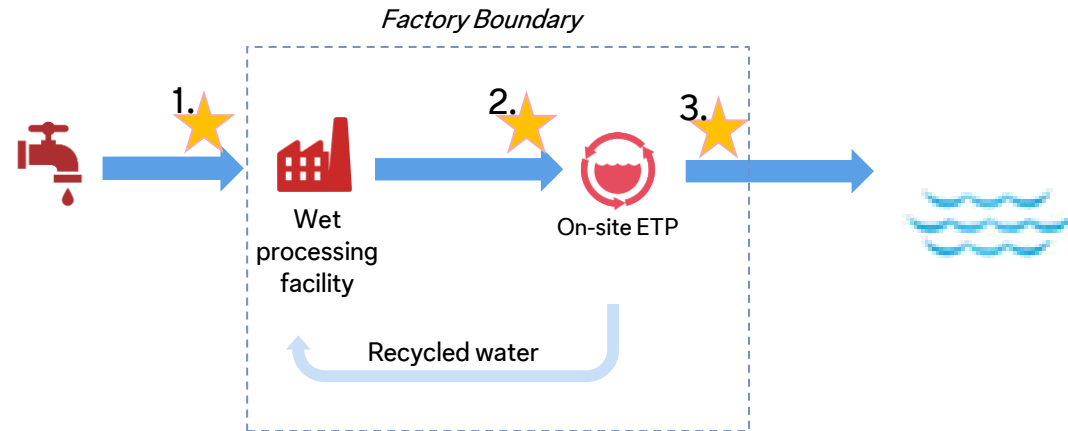
- 1A) Conventional Parameters
- 1B) Conventional Parameters –METALS
- 2A) APs and APEOs
- 2B) Chlorobenzenes and Chlorotoluenes
- 2C) Chlorophenols
- 2D) Azo Dyes
- 2E) Carcinogenic Dyes
- 2F) Disperse Dyes
- 2G) Flame Retardants
- 2H) Glycols
- 2I) Halogenated Solvents
- 2J) Organotin Compounds
- 2K) Perfluorinated and Polyfluorinated Chemicals
- 2L) Phthalates
- 2M) Poly Aromatic Hydrocarbons
- 2N) Volatile Organic Compounds

1 – Third parties: Bureau Veritas Consumer Product Services (BVCPS), SGS

Methodology

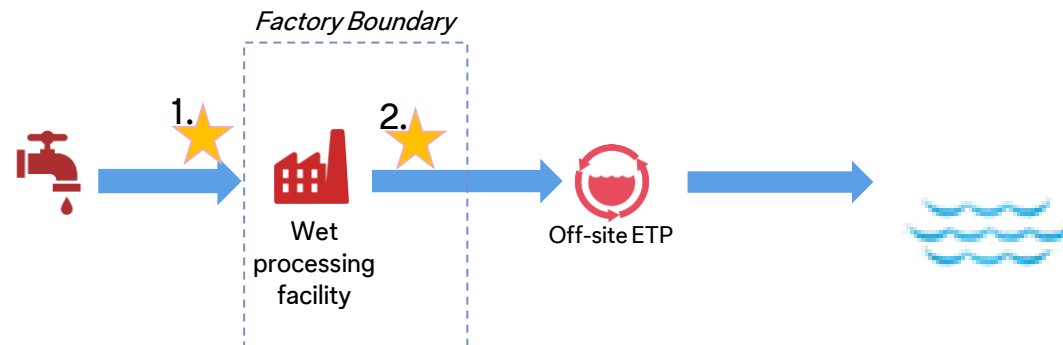
Sampling Points¹ for on-site ETP

1. Incoming water²
2. Raw Wastewater
3. Discharged Wastewater³



Sampling Points¹ for off-site ETP

1. Incoming water²
2. Discharged wastewater



Sampling Time and Method

The sampling was conducted within a semi-announced window of one working week. Sampling was only conducted if the facility was in full operation and typically conducted between 9am to 5pm. The sample analyzed was a 8 hour composite sample mixed with grab samples taken every hour. Stringent international standards were followed during the sampling and transport to ensure sample preservation and integrity.

1 – Please refer Appendix 1 for detailed Sampling Plan

2– Water sources are groundwater, municipal supply or water extracted from fresh water bodies like rivers, lakes.

3 - For factories with Zero Liquid Discharge, samples were not collected at point number 3. as part of C&A SCM Program.

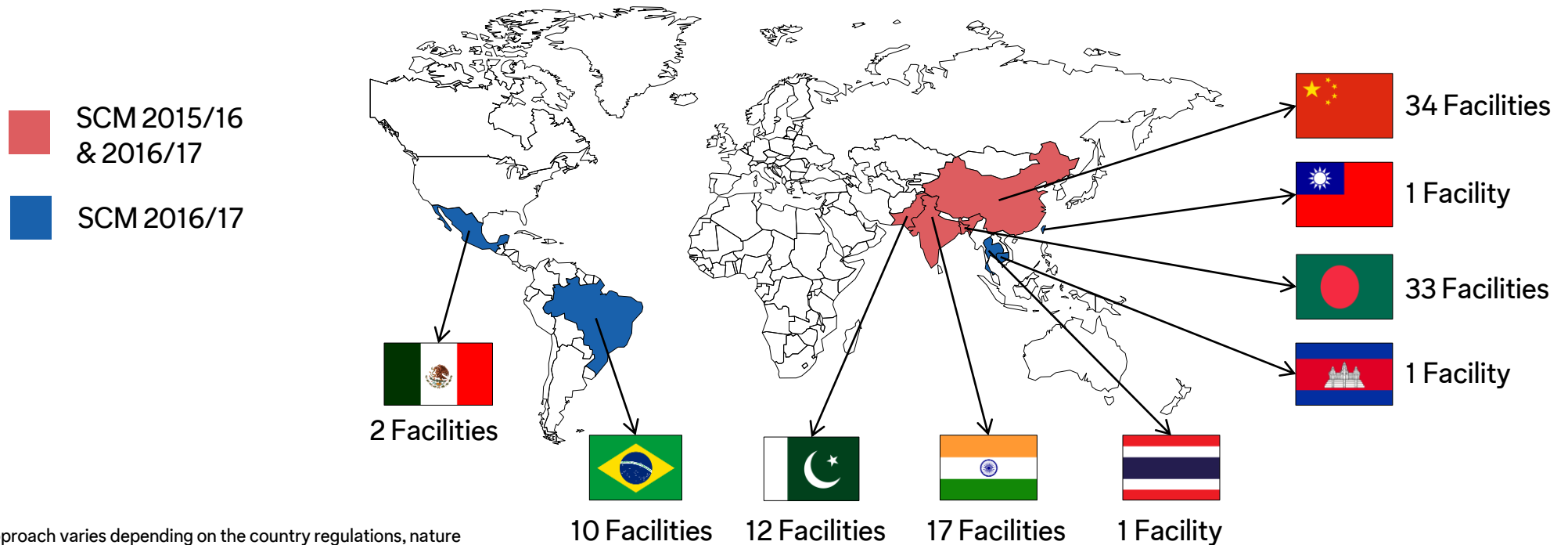
Methodology

Geographical Coverage

In 2016/17, C&A expanded the SCM program to cover 111 wet processing facilities (up from 52 as compared with last year), with additional geographies including Thailand, Cambodia, Taiwan, Brazil, and Mexico.

Wet processing facilities included nominated mills, laundries and screen printing units.

This coverage equates to 79% of our nominated fabric C&A Europe, 50% products sourced from vertically integrated production units, 33% of domestic fabric for C&A China, 70% of laundry units for C&A Europe, <10% of domestic fabric for C&A Mexico, and 50% of domestic fabric for C&A Brazil



Sampling approach varies depending on the country regulations, nature of wet processing and type of wastewater treatment techniques used. Hence number of facilities tested per country in subsequent slides may vary from the numbers listed here.

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Summary & Analysis

Summary of Detections

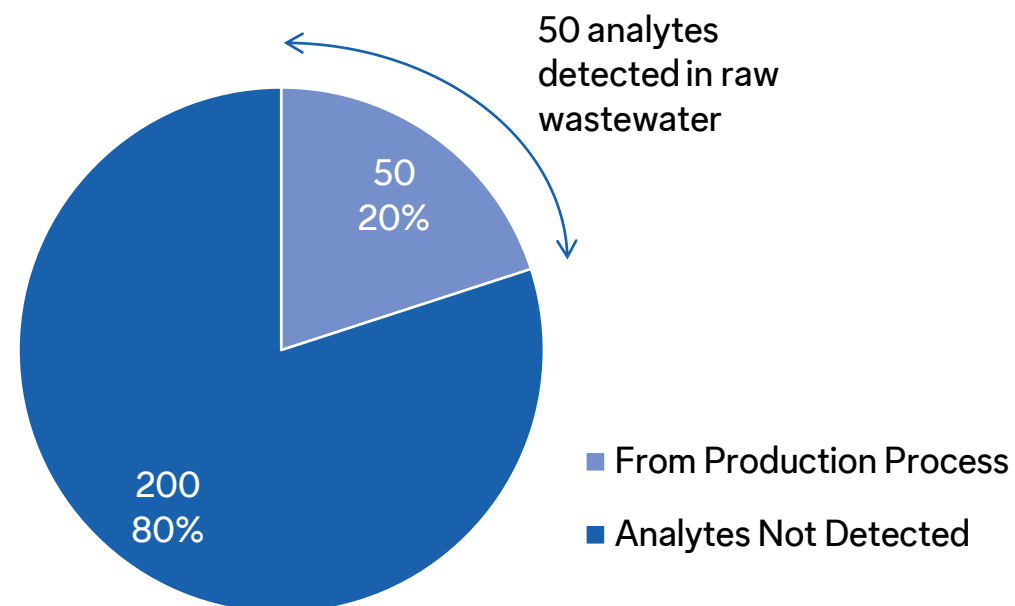
Table 1: Chemical Classes Detected by Sampling Point

	Incoming Water	Raw wastewater	Discharged wastewater
1A) Conventional Parameters	Not Applicable	Not Applicable	
1B) Conventional Parameters –METALS			
2A) APs and APEOs			
2B) Chlorobenzenes and Chlorotoluenes			
2C) Chlorophenols			
2D) Azo Dyes			
2E) Carcinogenic Dyes	Not Detected	Not Detected	Not Detected
2F) Disperse Dyes	Not Detected	Not Detected	Not Detected
2G) Flame Retardants			
2H) Glycols	Not Detected	Not Detected	Not Detected
2I) Halogenated Solvents			
2J) Organotin Compounds	Not Detected		
2K) Perfluorinated and Polyfluorinated Chemicals			
2L) Phthalates			
2M) Poly Aromatic Hydrocarbons			Not Detected
2N) Volatile Organic Compounds			

- Not Detected

- Not Applicable

Figure 1: Detected Analytes by Source



- 200 analytes out of 250 are not detected across all sampling points.
- 50 analytes were detected in raw wastewater and 49 were found as contaminations from polluted incoming water
- Out of 250 analytes from 15 priority chemical groups (1A not considered):
 - 49 analytes across 11 chemical groups were detected in incoming water
 - 50 analytes across 12 chemical groups were detected in raw wastewater
 - 46 analytes across 11 chemical groups were detected in discharged wastewater

Detections Disclosure: GLOBAL



- Incoming water shown significant pollution with contaminations;
 - 93% of incoming water samples contaminated with heavy metals
 - 15% of incoming water samples contaminated with phthalates
- PFCs were detected in 11 raw wastewater samples, with 6 of these being traced to incoming water contamination
- Pthalates, Halogenated Solvents, AP & APEOs and Azo Colorants represent the biggest challenge in the supply chain .
- In many chemical groups it appears as if the water leaving the factory is ‘cleaner’ than the water entering from public supply, however, C&A need to explore if these are being transferred to the sludge.

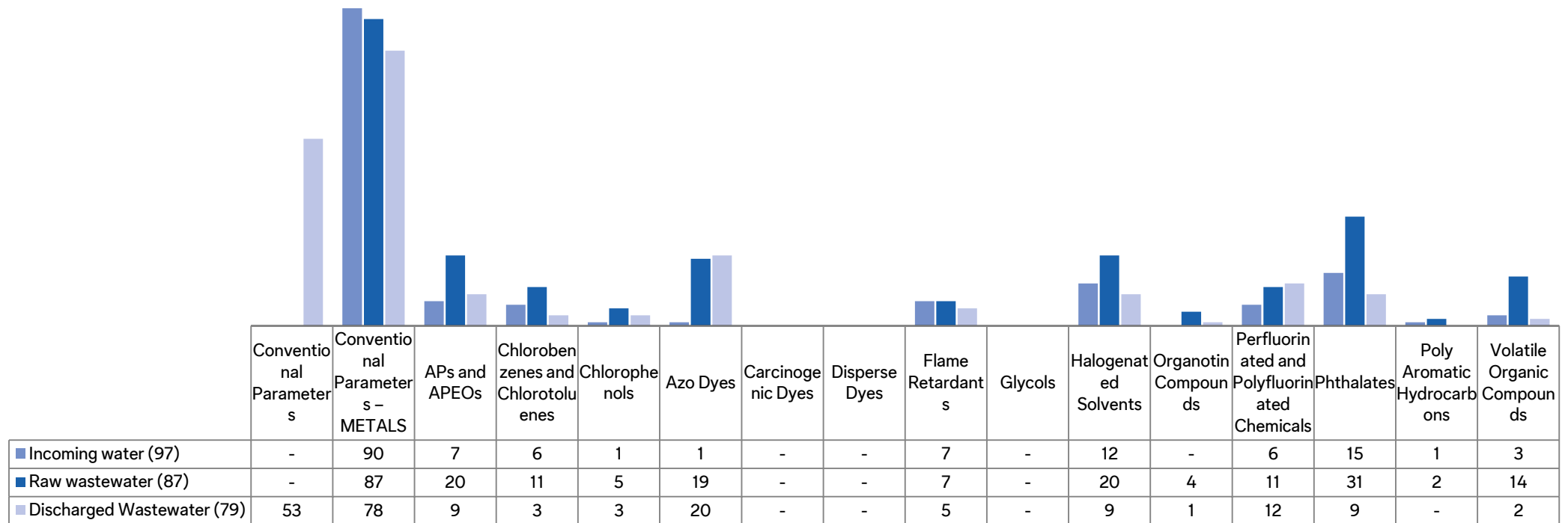


Figure 2: Facilities with Detections at All 3 Sampling Points, Global

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an ‘after treatment’ test) and on occasion C&A accepted other ZDHC Brand’s test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Mexico results are not included in the analysis due to ongoing correlation tests. Reports will be published on IPE once completed.

Country wise Detections Disclosure: CHINA



- Incoming water shown significant pollution with contaminations;
 - 23% of incoming water samples contaminated with PFCs, a substance that is banned in C&A production
 - 100% of incoming water samples contaminated with heavy metals
- 10 raw wastewater samples had detections of PFCs (last year was 9), with 6 of these being traced to incoming water contamination and 4 samples being traced to the use in manufacturing processes
- Detections of AP & APEOs and Azo Colorants largely can be traced to the use in manufacturing processes

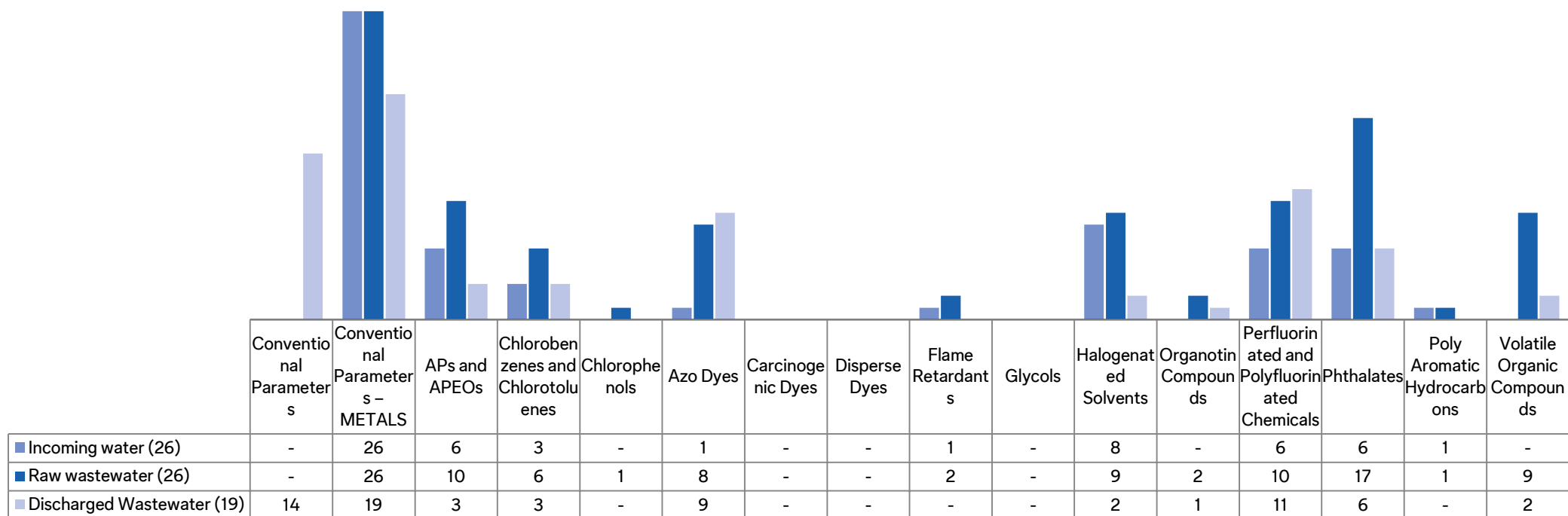


Figure 3: Facilities with Detections at All 3 Sampling Points, China

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an 'after treatment' test) and on occasion C&A accepted other ZDHC Brand's test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Country wise Detections Disclosure: BANGLADESH



- Heavy metals, Flame Retardants and Halogenated Solvents were found in incoming water, raw and discharged wastewater.
- AP & APEOs, Azo Dyes and Organotin Compounds remain a concern with detections in 2, 9 and 9 raw wastewater samples respectively that can be traced back to use in the manufacturing process
- 6 priority chemical groups were completely absent of detections

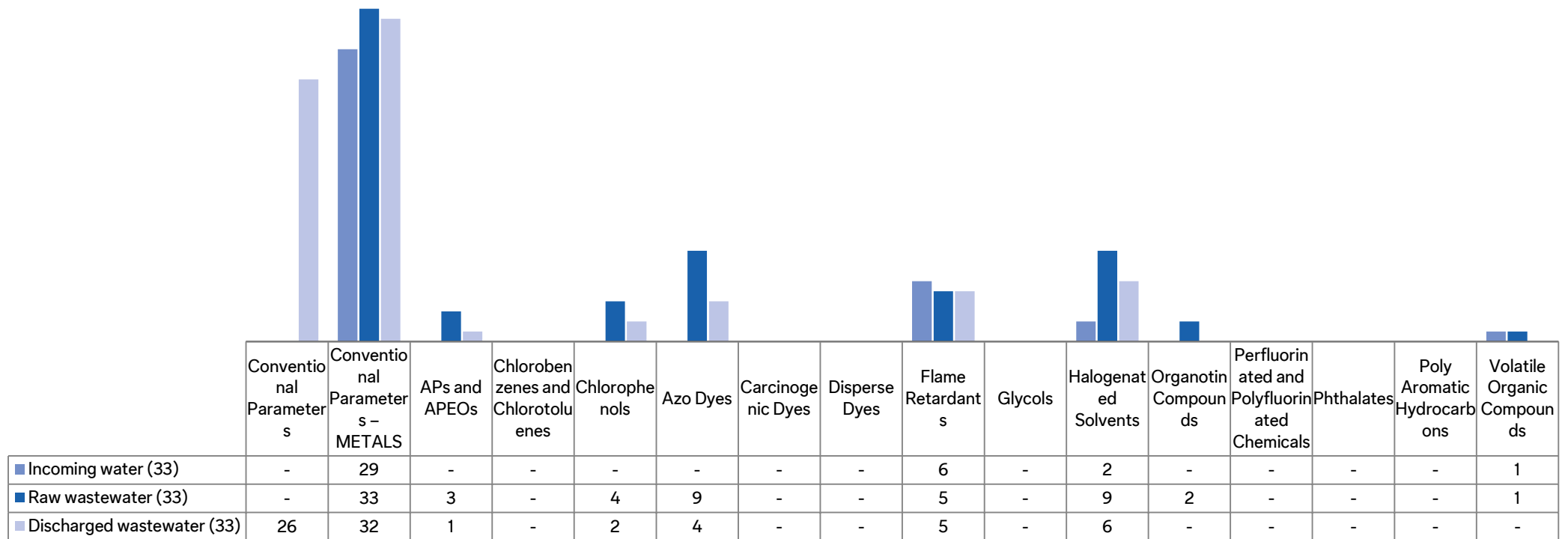


Figure 4: Facilities with Detections at All 3 Sampling Points, Bangladesh

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an 'after treatment' test) and on occasion C&A accepted other ZDHC Brand's test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Country wise Detections Disclosure: INDIA



- Out of 17 incoming water samples, 15 were contaminated with heavy metals, with one detection also in each AP & APEOs, Chlorophenols and Halogenated Solvents
- All 17 raw wastewater samples had detections for heavy metals with 2 being traced to the manufacturing process
- 5 chemical groups were absent of detections

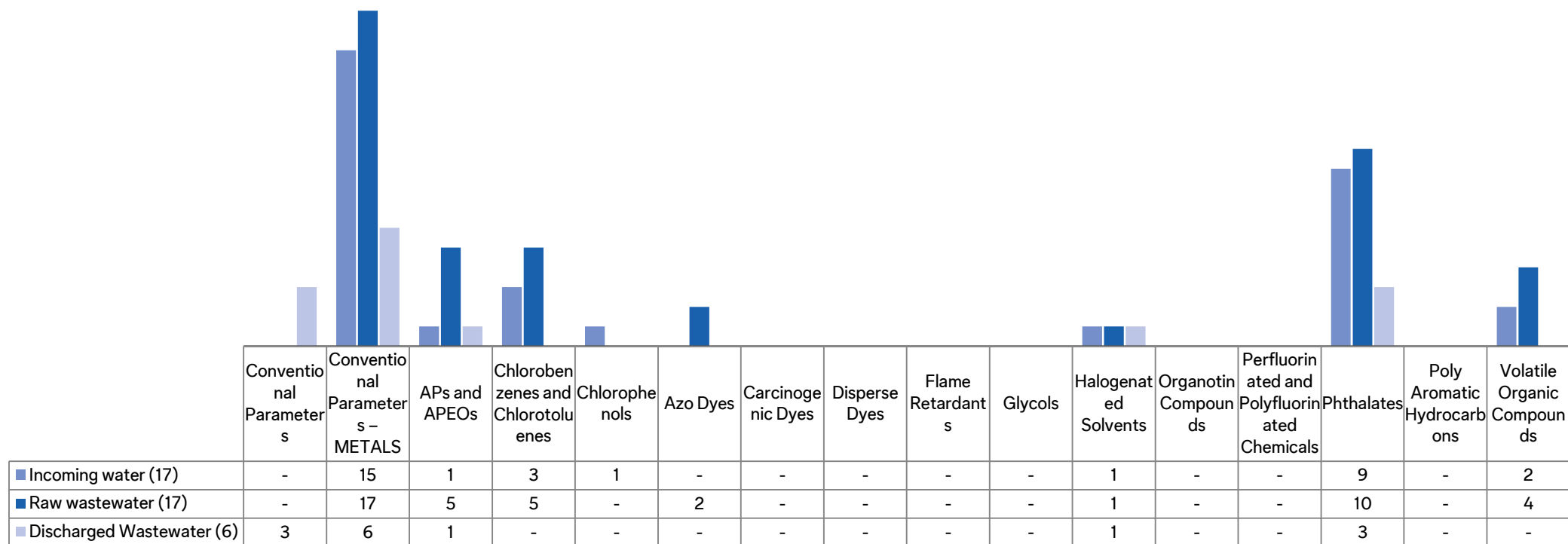


Figure 5: Facilities with Detections at All 3 Sampling Points, India

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an ‘after treatment’ test) and on occasion C&A accepted other ZDHC Brand’s test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Country wise Detections Disclosure: PAKISTAN



- Contaminated incoming water was responsible for all detections in Heavy Metals and Halogenated Solvents
- 1 detection of PFC and 3 detections of Pthalates are found in raw wastewater samples.

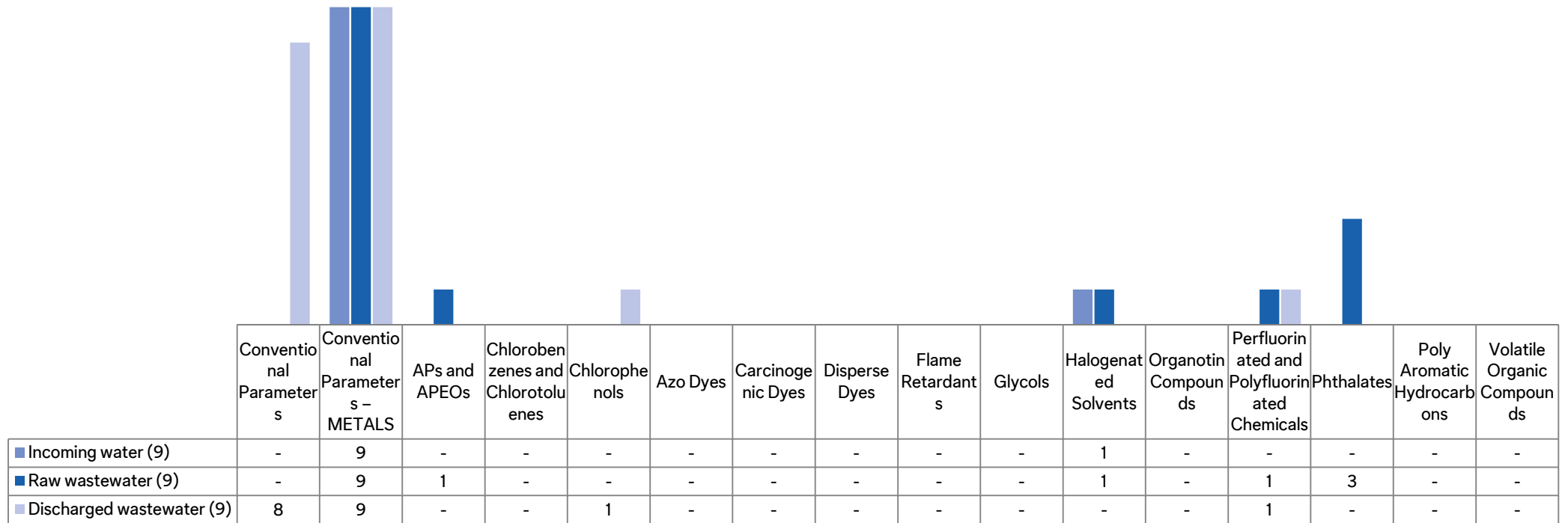


Figure 6: Facilities with Detections at All 3 Sampling Points, Pakistan

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an 'after treatment' test) and on occasion C&A accepted other ZDHC Brand's test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Country wise Detections Disclosure: BRAZIL



- Only Heavy Metals, AP APEOs and Azo Dyes are found in the supply chain in Brazil.
- 12 chemical classes are absent from the supply chain.

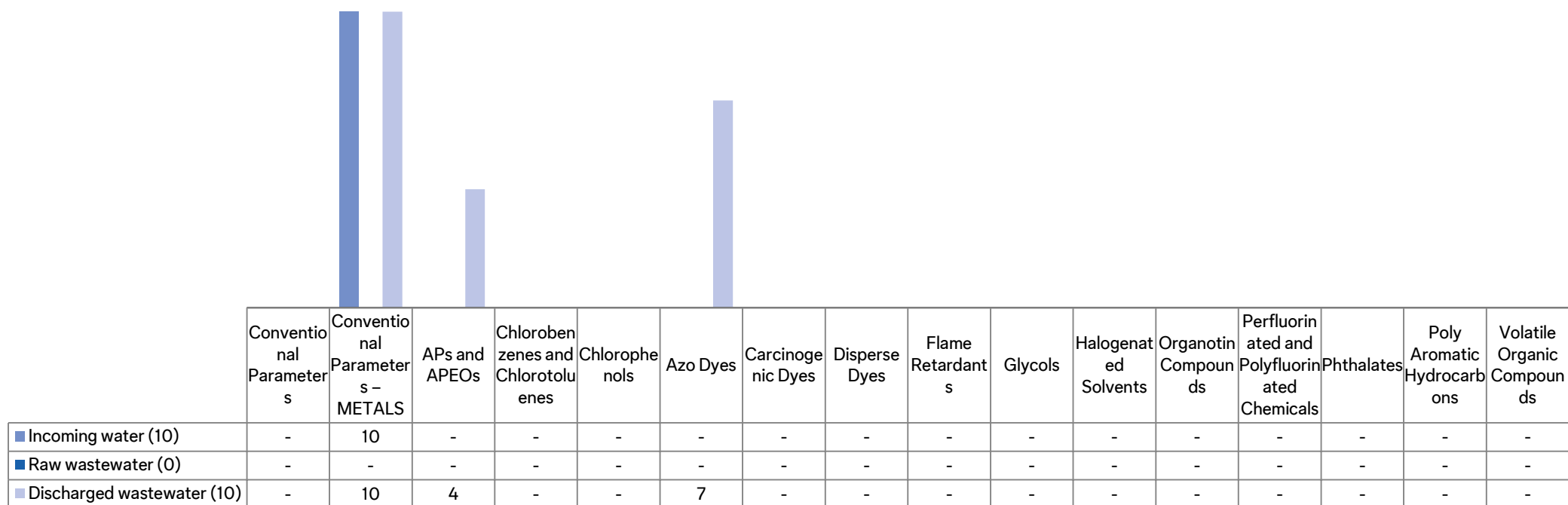


Figure 7: Facilities with Detections at All 3 Sampling Points, Brazil

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an ‘after treatment’ test) and on occasion C&A accepted other ZDHC Brand’s test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Country wise Detections Disclosure: CAMBODIA



- Only Heavy Metals, AP APEOs and Pthalates are found in the supply chain in Cambodia.
- 12 chemical classes are absent from the supply chain.

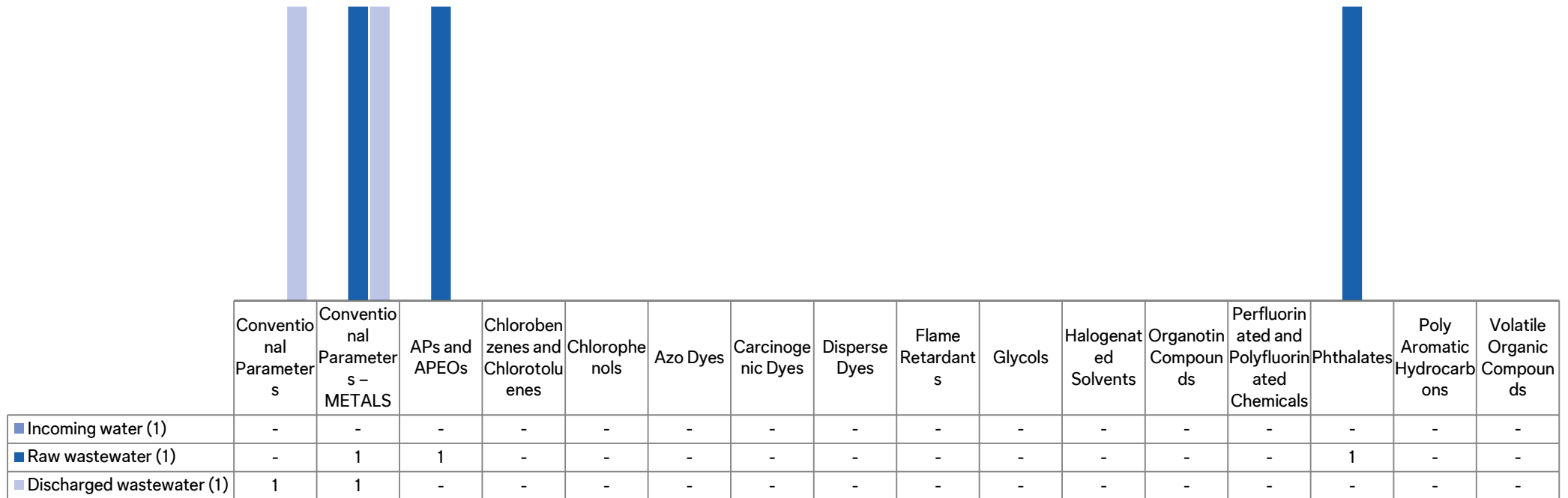


Figure 8: Facilities with Detections at All 3 Sampling Points, Cambodia

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an ‘after treatment’ test) and on occasion C&A accepted other ZDHC Brand’s test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Country wise Detections Disclosure: TAIWAN



- Heavy Metals and Poly Aromatic Hydrocarbons are found in the supply chain.
- 13 chemical classes are not detected in the supply chain

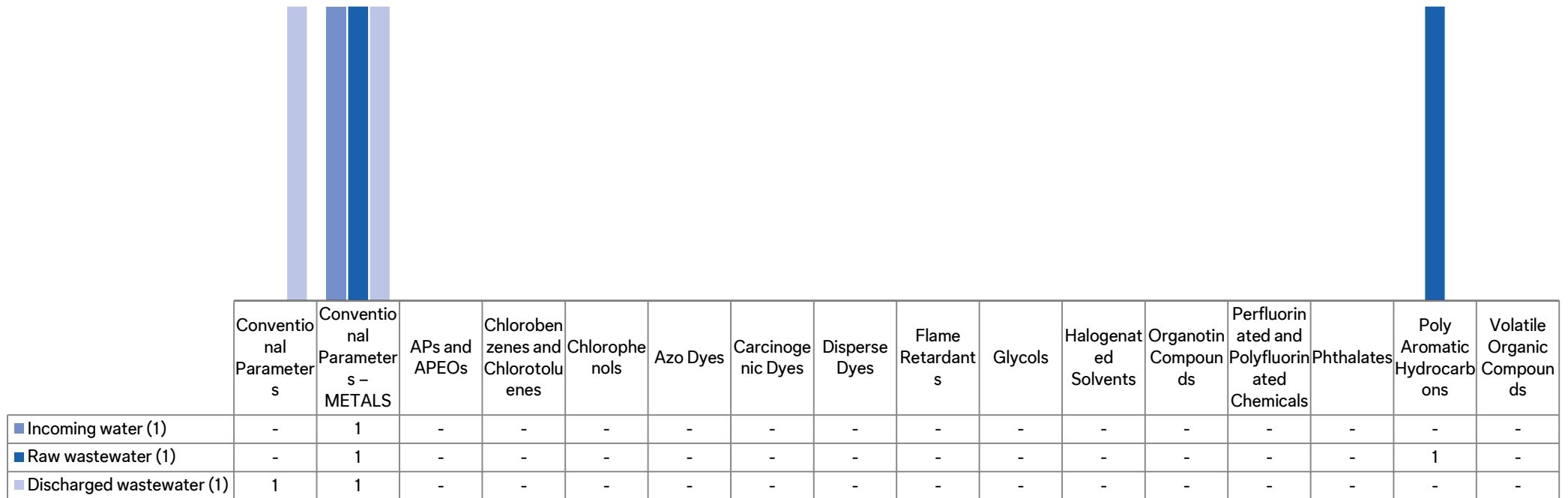
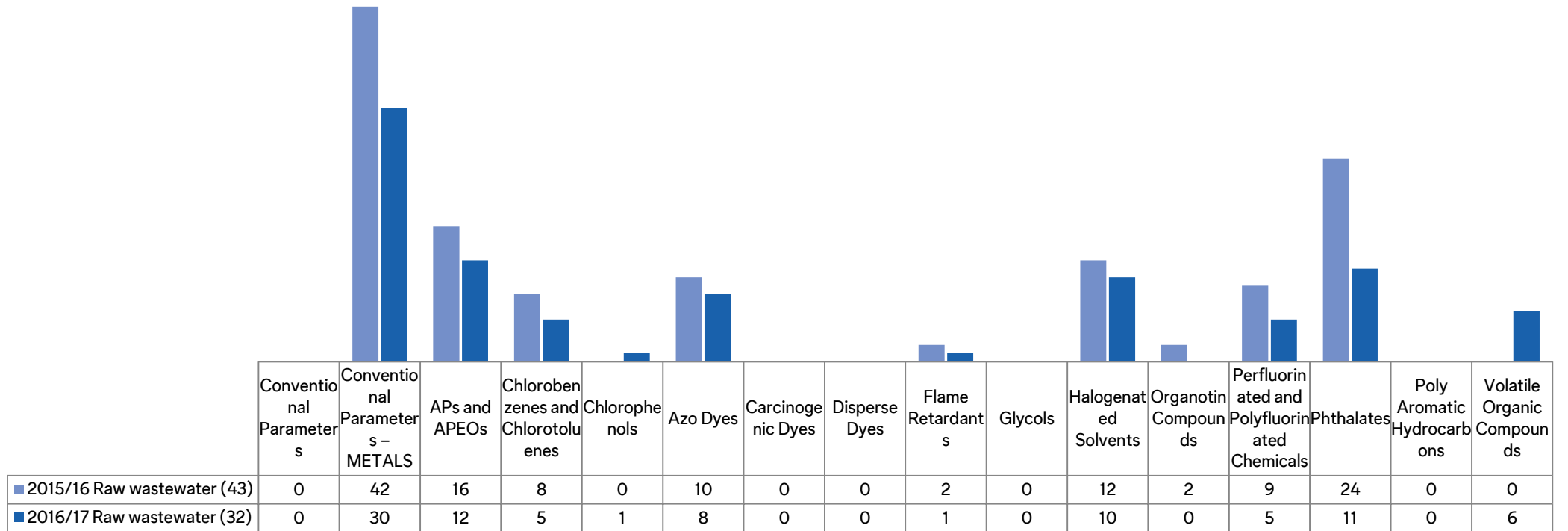


Figure 9: Facilities with Detections at All 3 Sampling Points, Taiwan

Note: The number of tests conducted at each sampling point may vary depending on the set-up of the facility (off-site ETP will not have an 'after treatment' test) and on occasion C&A accepted other ZDHC Brand's test report, if conducted within the last 12 months, whose sampling points may have differed to C&A methodology.

Detections in comparison with 2015/16

Figure 11: Raw wastewater Detections in comparison with last year 2015-16 for the same facilities



Capacity Building Initiative

C&A has rolled out a comprehensive 2-days training program on chemicals and wastewater management

- At C&A, we continuously work with our value chain partners to improve their performance. We work collaboratively with our suppliers to monitor the implementation progress of the improvement plans. We identified the common areas of improvement and delivered a comprehensive 2-days training program on chemical management and wastewater management, in partnership with a leading subject matter capacity building expert. We have started to roll out this training program from 2017 and will scale it up to major sourcing countries.

1. Priority Chemicals for Detox
2. Chemical Management System - CMS
3. Chemical Inventory Management - CIM
4. Material Safety Data Sheets - (M)SDS
5. Declarations, Certificates and Commitment letters
6. Risk assessment - Processes and Sources of Chemicals
7. Waste Water Treatment Technologies and Plants - WWTP
8. Management of Chemicals at WWTPs through CIM
9. Air Emission

Way forward

C&A will continue to use its influence and knowledge to refine the use of chemicals in its global supply chain.

- All wastewater test reports are assessed for conformance to the [ZDHC Wastewater Guidelines](#). If detections are found then an investigation using chemical tractability to find the substance of concern and find safer alternatives. This will be implemented as part of their Corrective Action Plan.
- Specifically, if PFCs are detected in the wastewater before treatment, C&A will test the fabric to assess conformance to the RSL.
- Across all detections, C&A will implement the 'Clean Factory Approach' meaning that we will look beyond C&A production and support to improve chemical management systems and phase-out hazardous chemicals at the facility level.
- Inline with the C&A strategy of public disclosure and in support of the Right to Know principle, C&A has worked with all tested wet processing facilities to disclose their raw waste water discharge data on the Institute of Public and Environmental Affairs (IPE) website .
- To increase transparency C&A has publically released its Tier 1 suppliers factory's and by June 2017 will release a list of our Tier 2 facilities including laundries and printers.

Way forward (continued)

- Work with individual facilities and their top management to create their own hazardous chemicals phase out plan, in alignment with the C&A Sustainable Chemicals Management strategy and the ZDHC Roadmap to Zero.
- Build the necessary capacity within the supply chain on chemicals management and waste water issues so that implementations can be successfully completed and sustained. This is done with the comprehensive 2-day training program.
- Continue the cycle of wastewater testing (semi-annually) and chemical management audits (annually) to monitor continual progress and trends in the C&A supply chain.
- Through our work with ZDHC, partner with chemical suppliers, manufacturing partners, and wet processors to increase availability of safer alternative chemicals and to enhance the MRSL beyond the initial priority chemical groups.
- Continue to publish, at least annually, the results of the C&A wastewater testing program publically. Results can be found here - <http://materialimpacts.c-and-a.com/?id=1826>

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Appendix

Appendix 1

Testing Methodology

- We have aligned our wastewater testing methodology with the newly published ZDHC Wastewater Guidelines, in addition to our existing test parameters.
- Method of sampling used is time-weighted composite grab samples. 8-hours time-weighted composite grab samples are discrete samples that are taken at a location to provide water quality characteristics at that time. For the purposes of quantifying water or wastewater constituents, 8-hour time-weighted composite grab samples will show the concentrations at that location and time of sampling. They will not provide any information about the concentrations outside that point in time.
- Sampling procedure is with reference to below standards:
 - 1) South Australia EPA Guidelines (June 2007), Regulatory Monitoring and Testing Water and Wastewater Sampling
 - 2) Australia EPA (Victoria) Guideline (June 2009), Sampling and Analysis of Waters, Wastewaters, Soils and Wastes.
 - 3) ISO 5667-3-2003, Water Quality – Sampling – Part 3: Guidance on the Preservation and Handling of Water Samples
 - 4) ASTM D3976-92 (Reapproved 2010), Standard Practice for Preparation of Sediment Samples for Chemical Analysis.

Appendix 2

Sustainable Chemicals Management Audit

- C&A is committed to the goal of achieving zero discharge of hazardous chemicals (ZDHC) in the supply chain.
- C&A started rolling out its Chemical Management Program globally across facilities with wet processing in 2015. As part of the program, the chemical management practices in the supply chain are evaluated in order to assess performance and identify areas where improvements are needed.
- As part of our vision to drive the development of one industry standard that comprehensively assesses the on-site chemical management performance of a facility, C&A piloted the SAC Higg 3.0 methodology alongside components of the Zero Discharge of Hazardous Chemicals (ZDHC) audit. We continue to work closely with SAC and ZDHC on the development of Higg 3.0. assessment tool and verification framework.

Appendix 3

Priority Chemical Classes and Analytes

- Testing procedure is aligned with the ZDHC Wastewater Guidelines available [here](#).

