KDD053 - EHS Waste Management Process

Status	Approved
Owner	Stefanie Schwartz
Stakeholders	HUBERT, Julia Anne, Chris Ann Miller, DESTHIEUX, Vincent, Sandrine Rochat, Nicolas Thomas, Marie Flourie, Martina Gatti,

Issue

The lack of harmonised business process and solution as well as transparency on handling and related data of waste management down to site level has an impact on regulatory compliance and reporting requirements. Waste is currently managed offline at site level, which adversely impacts data management, data integrity and reporting in relation to waste management in Syensqo. The tools and processes used for different sites and countries vary. A decision needs to be made on the waste management tool tool and solution to be implemented as part of the ERP Rebuild project.

Recommendation

The recommendation is for Waste Management to be harmonised at group level for SAP related processes (Option B). It relates to waste management processes supported by SAP as well as business processes that are in scope of ERP rebuild. The primary objective of implementing of waste management in SAP as part of ERP Rebuild is the establishment of a globally simplified and harmonised waste management process, which allows traceability and transparency and consequently enables analysis of waste management throughout the organisation.

It can also act as a foundation to further support any additional, local waste management requirements, which will benefit from a harmonised process in SAP improving transparency, data integrity, data management, reporting and compliance. It is most feasible to do so using SAP standard functionality due to the level of integration of waste management with other logistics processes.

Background & Context

Syensqo has the responsibility to manage the generation, storage, transportation and disposing of materials deemed to be waste relevant. Regulation s and reporting requirements for waste management vary by country. Currently there are HSE environment experts in each zone e.g. Asia and Europe, who follow relevant local regulations, which are managed according to permits and local regulations. Either the waste disposal vendor organises the transport or alternatively the transport is managed internally using authorised companies, which ship the waste product to an authorised waste disposal facilities.

<u>The Current Solution</u>

All sites/countries use individual tools and processes to manage waste throughout the organisation.

Some the sites use a waste process with material groups to categorise waste treatments to be allocated to purchase orders. The material groups are allocated to a combination of site/waste stream/treatment method, examples as per below image. Analysis is done by waste streams only. Syensqo is currently expected to have over 1000 waste streams i.e. waste code/object based on estimates.

An one off example for a site process is at Paulinia in Brazil where a simplified SAP subcontracting process has been implemented since 2015. In Brazil the SBS Service Center Curitiba takes the Rhodia Poliamida e Especialidades Ltda transactions operations for the “Waste Management” on the “Provisioning and Accounts Payable process". The follow-up with vendors is managed by SBS Service Center.

Examples of Material Group allocations

site	Waste stream	Treatment method	Material Group
Borger / Specialty Polymers	Filter press cake (PPS polymer-non hazardous)	Landfill	Non Hazardous Waste Treatment
St Fons / Aroma	Mother Liquor (hazardous liquid waste)	Transported by truck to an off site incinerator operated by Suez where it is incinerated without energy recovery.	Hazardous Waste Treatment
St Fons / Aroma	Various wastewater streams.	Biological treatment at the Gepeif WWTU, a near site facility (operated by Veolia) with direct connection to Solvay site.	Effluent treatment
Spinetta	Various wastewater streams.	Treated at the on site WWTU operated by Solvay (treating effluents coming from both Arkema and Solvay).	Effluent treatment
Spinetta	Sludges from the WWTU operated by Solvay on site.	Landfill	Non Hazardous Waste Treatment
Melle	Various wastewater streams.	The water Treatment Unit (coagulation / flocculation / flotation / then biological) belongs to Solvay, is operated by SUEZ, and treats discharges from Solvay (20%) and DuPont (80%).	Effluent treatment
Linne-Herten	AQ aqueous residue.	the aqueous residue stream from the production of amyl anthraquinone is collected in a pond and is pumped and transported by truck to a water treatment plant / industrial liquid residues.	Effluent treatment

Reconciliation of supplier invoices relating to waste management is currently challenging, sometimes not possible. There is a risk of claims and extra charges being incurred by Syensqo. For example open purchase orders for waste vendors in France who charge at the end of month based on what has been shipped. The charges cannot be analysed or reconciled based on SAP purchase orders. Purchase orders for waste disposal currently contain only price list and amount as per contract. They have no indicator what type waste the order has been raised for.

Sustainability

Sustainable waste is relevant for CSRD (Corporate Sustainability Reporting Directive), but currently not tracked. Whilst invoices are categorised based on hazard of waste only, CSRD requirements demand more granularity going forward. GHG emissions are impacted by the way that Syensqo manages waste, which falls into Scope 3 of footprint management. Scope 3 encompasses emissions that are not produced by the company itself and are not the result of activities from assets owned or controlled by them, but by those that it's indirectly responsible for up and down its value chain. An example is the disposal of products. Going forward Syensqo must be able to monitor and calculate forecasts relating to all types of waste with improved granularity.

Reporting

Each country has its own reporting protocol for waste management e.g. with local authorities. For example Tennaxia, a non-SAP application, is used in France to follow waste volumes and produce end of year reports. Tennaxia connects to government web-based platform TrackDechet. US has different vendors providing their own software to do monitoring and reporting for Syensqo. Consistent monitoring and harmonisation principles drive the need for inhouse waste management rather than through different local third parties. It also means that the solution changes every time the vendor is changed.

Assumptions

- Waste considered and defined as part of the solution scope is commercial waste only. Domestic waste is not in scope of this solution.
- A material will be created in SAP for all the commercial waste.
- Any waste product, which is turned into a by-product for profit, is not classed as waste.
- The Waste Management group process is to be adopted in all countries and sites using SAP.
- The integration and continuity of local Waste Management systems (non-SAP) will be decided as part of detailed design.
- Any impacts on the future mobility solution from Waste Management e.g. relating to inventory management will be considered as part of detailed design (see also related KDD for Mobility Solution for Enterprise Asset Management below).

Constraints

The SAP Roadmap extends to end of 2024 and gives a product vision for developments to be expected thereafter. Developments on the roadmap for public cloud only by 2025 may be implemented in private cloud thereafter. Please note, with SAP Product Vision there are no certain plans to implement these features, it is just a strategy and subject to change.

Local waste management requirements are out of scope for the purpose of this KDD.

For Waste Management the SAP Road Map (see references) has the following developments for S/4HANA public or private cloud by 2025:

1. Integration of waste management processes with other logistics processes like supply chain management and procure to pay:
    - Procure waste disposal services.
    - Pay invoices in a timely manner.
    - Manage on-site waste storage and plan timely shipment of waste.
2. Integration of waste management and purchasing and sales processes (public cloud):
    a. Procure waste disposal services.
    b. Pay invoices in a timely manner.
    c. Manage on-site waste storage and plan timely shipments of waste.
3. Management of waste cost allocation and payments associated with the transportation and disposal of waste (public cloud):
    a. View costs associated with the transportation and disposal of waste
    b. Allocate waste transportation and disposal costs to appropriate cost centres
4. Further integration with extended warehouse management to enable tracking of stored waste (public cloud).
5. Reporting toxic chemical releases to publicly accessible databases e.g. Pollutant Release and Transfer Register EU-PRTR (public cloud).

Any developments and features available by SAP as part of roadmap can be added at a later date as and when required.

Impacts

- The implementation of the harmonised waste management solution for Syensqo requires the implementation and ownership of a group process with support of the relevant stakeholder in all countries/regions.
- The S/4HANA implementation will have to accommodate for a soft or hard integration to non-SAP tools currently in use to comply with local authority reporting requirements. The details will be determined in detailed design.
- Impacts on waste management related master data and data governance are to be expected as part of the implementation.
- Appropriate change management and training will be required to support the implementation of a waste management solution in S/4HANA.
- The SAP licence for SAP S/4HANA Cloud for Environment Management (private edition) will be required as part of the ERP Rebuild implementation.

Business Rules

- A material will be created in SAP for all the commercial waste products.

Options considered

Option A: *Continuation of AS IS*

The continuation of large number of variations of local processes and systems specific to country or site would stand against the alignment with project principles including simplification and harmonisation that guide the ERP Rebuild project. Continuing with the current solution would rely on the use of different local solutions for waste management data collection and reporting purposes. It would potentially require enhancements for individual countries/sites to support local waste management processes. All BW based waste related reports would need redeveloping due to S/4HANA not featuring SAP BW in its scope.

It would counteract the required level of accuracy for regulatory reporting and compliance as well as the efforts required to adhere to group reporting requirements due to low levels of transparency and data integrity. Additionally, due to the level of integration with supply chain in SAP it is not feasible to rely on a fragmented waste management solution, which may be specific to a particular country or site.

Option B: Waste Management Solution in SAP

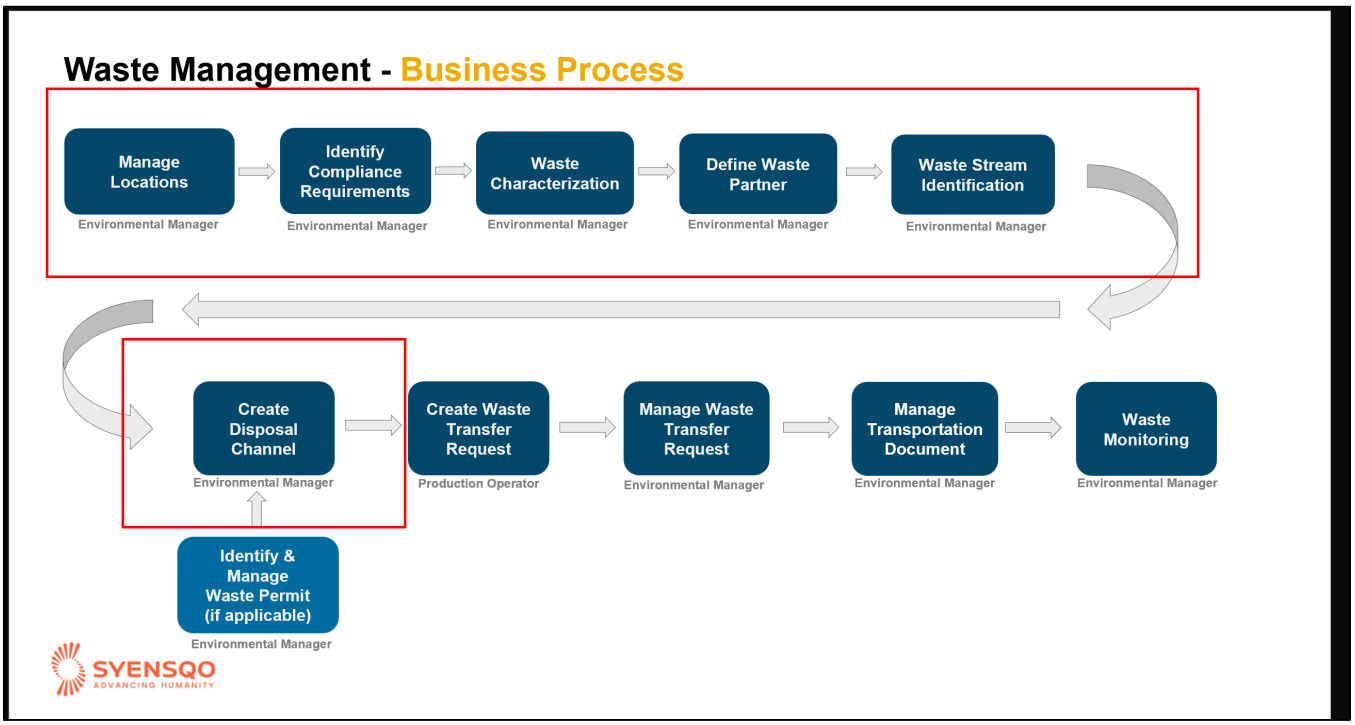
A waste management solution in SAP enables the company to establish a transparent operation that ensure and demonstrate a compliant waste management process within the entire organisation. Waste Management in EHS is designed to support compliance with environmental regulations and ensure appropriate handling, disposal, and reporting of waste materials. The functional features enable tracking and managing waste throughout its lifecycle from generation to disposal. It enables the recording of waste generation data, classification of waste types, tracking waste storage locations and managing of waste transportation and disposal processes.

The capabilities of the SAP EHS Waste Management solution are as follows:

- Central repository for all waste management related compliance requirements:
    - One global repository of transport documents for waste e.g. permits.
    - Global repository for waste disposers and transporters by location/area.

    - Transparency of disposal channels (incl. point of generation, waste generator, disposer, disposal facility) for different waste materials.
- Streamlined processes for master data and logistical planning and transportation:
    - Inventory Management recording goods movements (goods receipt and goods issue).
    - Transportation with dangerous goods information and transportation documents.
- Reporting via Waste Management Analytics, which enables reporting using waste related master data per site/country/region.

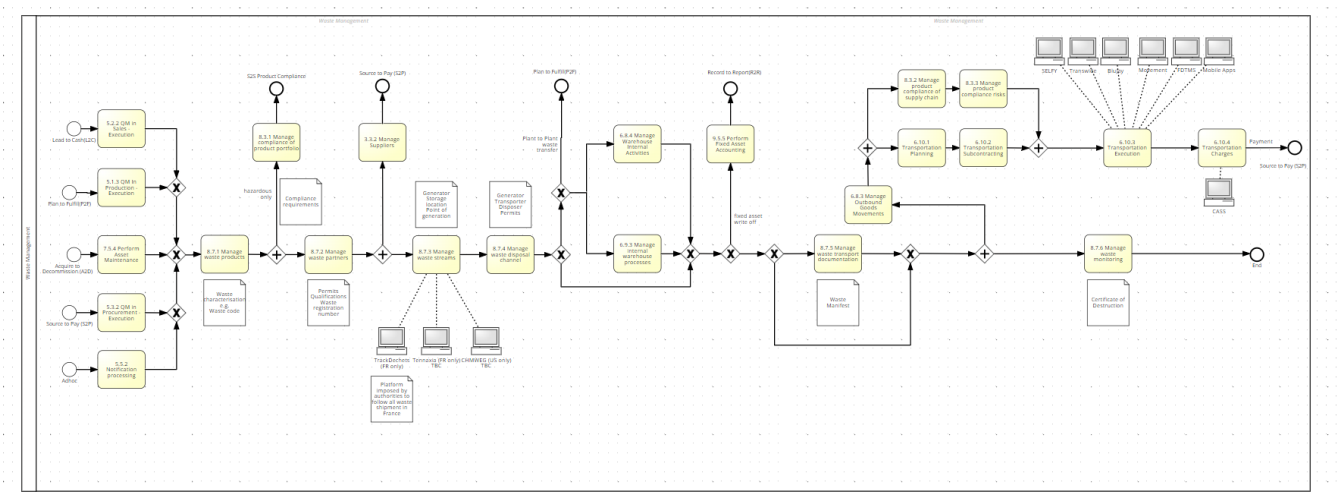
The SAP solution for Waste Management includes the following high-level process steps:



Waste related master data in SAP is located in SAP EHS Environment Management. The process for Waste Management master data should be as follows:

1. Waste locations
    a. Physical locations e.g. plants
    b. Classified as waste generator, storage or point of generation
    c. Persons responsible assigned to locations
2. Waste product - hazardous and non-hazardous, includes waste codes required for the creation of waste disposal documents.
    a. Types of commercial waste include:
        i. liquids/solids
        ii. products/by-products
        iii. organic/inorganic waste.
3. Business partners - e.g. waste transporters or waste disposers.
    a. Waste related suppliers must be qualified. Syensqo has to know who is in charge of the final treatment of the waste and where.
    b. Third parties e.g. CHMWEG in US to secure qualified business partners on Syensqo's behalf.
4. Waste streams - define the relationship between a waste product, waste generator, storage location and the points of generation.
5. Disposal channels - defines the relationship between a waste stream, transporters and disposers.
    a. Waste treatment can be done internally (e.g. incinerator) or externally.
    b. Types of waste treatment can include landfill, recycling, recovery for energy and incineration.
6. Waste transportation documents including permits.

The detailed E2E Waste Management Process (L3 level) with integration into related E2E is drafted as per below Signavio flow:



Evaluation

	Option A - Continue As Is	Option B - S/4HANA Waste Management
Compliance	Con • Lack of harmonisation and transparency. • Accuracy for regulatory reporting and compliance. • CSRD requires more granularity going forward. • Scope 3 emissions impact on footprint management.	Pro • Reduced risk of non-compliance and penalties. • Ensure continuity of license to operate. • Improved data accuracy and reporting transparency. • Enables the company to establish a transparent waste management operation. • Ensure appropriate handling, disposal, and reporting of waste materials throughout the organisation. • Central repository for all waste management related compliance requirements.
Integration	Con • Different local solutions for waste management data collection adding complexity. • Not feasible to rely on a fragmented waste management solution considering natural integration with logistics and supply chain. • Adversely impacts data management and data integrity. • Invoice reconciliation challenging, sometimes not possible. • Lack of waste tracking throughout the organisation.	Pro • SAP standard functionality offers optimal level of integration with other logistics processes. • Functional features enable tracking and managing waste throughout its lifecycle from generation to disposal. • It enables the managing of waste transportation and disposal processes. • Reduced effort to manage waste disposal process. • Streamlined processes for master data and logistical planning and transportation. • Disposal channel setup to validate shipping and disposal for specific wastes and reduce errors • Waste process integrated directly with the overall compliance management function within SAP EHS Con • Any related features available by SAP as part of roadmap beyond 2025 may have be added at a later date as and when required. • Enhancements may be required to further integrate the waste management solution beyond SAP standard functionality (as part of detailed design).

Harmonisation	Con • Adversely impacts data management, data integrity and reporting. • Does not align with project principles including simplification and harmonisation. • Each country has its own reporting system. • Large number of waste streams throughout the organisation.	Pro • Maximum harmonisation supporting transparency and data integrity. • Harmonised at group level. • Benefits Site or country specific waste related process to support local requirements. • Supports procurement strategy is to have limited number of suppliers per site for hazardous and non-hazardous waste treatment. • Globally simplified and harmonised waste management process. Con • Appropriate change management and training will be required to support the implementation. • Effort to collate and centralise necessary waste information.
Reporting	Con • Adversely impacts reporting capabilities. • Different local solutions to be analysed for reporting purposes. • BW based waste related reports would need redeveloping. • Accuracy for regulatory reporting and compliance. • Disproportionate efforts to establish group reporting due to low levels of transparency and data integrity. • Each country has its own reporting protocol for waste management.	Pro • It enables the recording of waste generation data, classification of waste types, tracking waste storage locations. • Reporting via Waste Management Analytics, which enables reporting using waste related master data per site/country/region. • Real time data available over and above annual reporting. Con • SAP standard reporting analytics app may have to be enhanced to allow for complex reporting requirements as part of detailed design.

See also

- SAP Road Map for SAP EHS Waste Management (SAP Environment Management) SAP-Road-Map-Explorer-20240829172949.xlsx
- Related KDDs:
  - KDD016 - Mobility Solution for Enterprise Asset Management

File	Modified
PDF File Workspace Mail - Fwd_ FOR APPROVAL - KDD053 - Waste Management.pdf	Sept 27, 2024 by FALL-ext, Cheikh
File forbidden.svg	Sept 04, 2024 by SCHWARTZ-ext, Stefanie
File add.svg	Sept 03, 2024 by SCHWARTZ-ext, Stefanie
Microsoft Excel Spreadsheet SAP-Road-Map-Explorer-20240829172949.xlsx	Aug 29, 2024 by SCHWARTZ-ext, Stefanie

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Change log

Version	Published	Changed By	Comment
CURRENT (v. 78)	**Sept 17, 2024 05:59**	**WENNINGER-ext, Sascha**	
v. 77	Sept 09, 2024 01:20	**NARAHARI-ext, Bhargavi**	
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v. 2	Jul 05, 2024 11:39	**SCHWARTZ-ext, Stefanie**
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Workflow history

Title	Last Updated By	Updated	Status
There are no pages at the moment.			

Workflow history

This view shows the 5 most recent entries. The complete workflow log is available from the 'Document Activity' menu item.

Sept 27, 2024	Actor	Type	Activity	Version
Approved	FALL-ext, Cheikh	State	changed state to Approved at 12:23 pm	v78
Pending SteerCo Review	FALL-ext, Cheikh	State	gave *Final Approval* approval at 12:23 pm	
Sept 26, 2024				
	FALL-ext, Cheikh	State	changed expiry date to '10 Oct, 2024 01:17 pm' at 1:17 pm	
		State	changed state to Pending SteerCo Review at 1:17 pm	v78
Pending Stakeholder Review	FALL-ext, Cheikh	State	gave *Stakeholder Review* approval at 1:17 pm	
Sept 17, 2024				
	WENNINGER-ext, Sascha	Edit	updated the page at 5:59 am	
		State	changed expiry date to '24 Sept, 2024 03:59 am' at 3:59 am	
		State	changed state to Pending Stakeholder Review at 3:59 am	v78