

## ICP-AGIR Narrative Close-out Report for Johannesburg (South Africa) – Parma (Italy) June 2023

Cooperation Data		
	<b>NON-EU CITY</b> City of Johannesburg (CoJ)	<b>EU City</b> City of Parma (CoP)
<b>Departments / Institutions involved</b>	<p>Group Strategy Policy Coordination and Relations (GSPCP)</p> <p>Environment and Infrastructure Services Department (EISD)</p> <p>Pikitup - Integrated waste management service provider to CoJ).</p> <p>University of Johannesburg (UJ)</p>	<p>Environmental Protection Funding and EU Policies unit</p>
<b>ICP AGIR City Coordinator</b>	<p>Kate Joseph</p> <p>Deputy Director</p>	<p>Ulisse Appiani</p> <p>City official</p>
<b>ICP AGIR Pairing Manager</b>	<p><b>ANDREAS SIREN</b></p> <p>andreas.siren@icp-agir.eu</p>	
<b>Description of the partnership</b>	<p>Knowledge sharing on integrated waste management strategy and policy to reduce residual waste</p>	

Key focus of cooperation: Sustainable Integrated Waste Management	
<b>Key focus of cooperation</b>	<p>The City Partners identified Sustainable Integrated Waste Management as a key focus of cooperation.</p> <p>Informed by Parma’s good results with separation at source through a KAYT/PAYT (Know-As-You-Throw/Pay-As-You-Throw) approach, the City of Johannesburg is investigating the potential of this and other waste management approaches through systems research and business modelling.</p>
<b>Counterparts</b>	<p>City of Johannesburg, Pikitup, University of Johannesburg (UJ), City of Parma &amp; Iren Ambiente</p>
<b>Objectives</b>	<p>CoJ has entered into a joint research project with the University of Johannesburg for the following three research objectives:</p>

<b>Key focus of cooperation: Sustainable Integrated Waste Management</b>	
	<p>1. Compile waste audit and other existing waste management data on City of Johannesburg to evaluate waste value chains and their potential, informed by existing partnerships such as Alliance to End Plastic Waste (AEPW) project supported by CoJ and UJ.</p> <p>2. Conduct systems research of K/PAYT and other waste management business models to determine how to implement and combine these strategies. This includes:</p> <ul style="list-style-type: none"> <li>- a review of the City of Parma’s PAYT business model,</li> <li>- a review of global best practices and</li> <li>- a review of CoJ’s current business model with regards to waste management.</li> </ul> <p>3. Conduct financial modelling to establish value chains and ROI and determine if there is a business case for PAYT or hybrid approaches in CoJ.</p>
<b>Expected results and benefits</b>	<p>Improved waste management data to inform decision-making for a more circular economy.</p> <p>Reduce organic waste going to landfills in Johannesburg.</p> <p>Reduce plastic waste by reducing problematic waste, redirecting, and recycling.</p> <p>Create jobs and promote economic growth by potentiating wet and dry waste value chains e.g. by better integrating informal and formal modes of dry waste management and innovating around wet/organic waste management.</p> <p>Enhance citizen education and awareness on their own waste footprint and the benefits of the circular economy.</p> <p>Continuous knowledge exchange and strengthening networks and collaborations, especially quadruple helix (government, industry, community, academic) collaboration to enable future projects.</p>

<b>KAYT (Know-as-you-throw) Pilot Project</b>	
<b>Activities</b>	<p>Work with stakeholders to define research and acquire permissions</p> <p>Data collection and analysis. Evaluate waste streams and potential using existing data.</p> <p>Conduct systems research on Parma PAYT, global best practices and existing CoJ model.</p> <p>Perform business modelling of PAYT and hybrid approaches in CoJ.</p> <p>Communicate findings.</p>
<b>Outcomes</b>	<p>Research scope defined and necessary permissions acquired.</p> <p>Waste streams in CoJ and associated potential waste value chains quantified.</p> <p>Review reports on PAYT and other waste management business models, and existing CoJ model.</p> <p>Financial implications of implementing PAYT and hybrid approaches in CoJ modelled.</p>

	Report on business case for K/PAYT or hybrid approach shared with stakeholders.				
<b>Indicators</b>	Key Performance Indicators	2020/21	2022/23		2023/24
		Baseline	Target	Actual	Target
	Percentage waste diverted from landfill	14%	15%	TBD	19%
	Percentage of green waste diverted	5%	N/A	TBD	7%
	Number of job opportunities created	New	N/A	N/A	2000
<b>Sustainability of the action</b>	<p>Programme to support zero waste to landfill strategy.</p> <p>Facilitate the quadruple helix (government, industry, community, academic) collaboration to enable future projects.</p> <p>Programme can provide additional feedstock for the planned CoJ biodigester, the construction is anticipated to be completed in December 2024. Capacity of the biodigester plant initially will be at pilot scale of 50 tons of biodegradable waste per day. Ongoing rollout of KAYT as informed by this research can support potential up-scaling of the biodigester.</p>				
<b>Project deliverables and resources</b>	Workshops/stakeholder engagement (for waste data/systems research)				€ 300
	Data collection, system review and analysis – ongoing				€1 500
	Research & Development Report & Recommendations				€1 200
	Workshops/stakeholder engagement (for business modelling)				€ 300
	System & Financial Modelling Report				€1 500
	EU Project Close Out Report – complete				€ 200
	<b>Total Project Costs</b>				<b>€5 000</b>

City Partnership Monitoring and Evaluation	
<b>Project progress and next steps</b>	<p>Work with stakeholders to define research and acquire permissions</p> <ul style="list-style-type: none"> <li>- Project Charter developed to define scope of work, project details and research team in consultation with City of Joburg, City of Parma and UJ.</li> <li>- Alliance to End Plastic Waste (AEPW) agreed to collaborate and share data. Findings/recommendations from KAYT will be shared in kind to advance peer learning and expand circle of influence</li> <li>- Permission obtained for interviews with JG Africa, Pikitup and EISD of CoJ</li> <li>- SLA with Project Charter reviewed by legal departments of UJ and CoJ</li> </ul> <p><b>Next steps:</b> Have SLA signed</p>

	<p>Data collection and analysis. Evaluate waste streams using existing data</p> <ul style="list-style-type: none"> <li>- Repository of existing waste and waste management data compiled including data and reports from CoJ (EISD, GSPCR), AEPW, Pikitup and JG Africa</li> <li>- Data being analysed by research team to conduct systems research</li> </ul> <p><b>Next steps:</b> Make an evaluation of waste streams and their potential to inform future business modelling</p> <p>Conduct systems research on Parma PAYT, global best practices and existing CoJ model</p> <ul style="list-style-type: none"> <li>- Researcher attended part of ICP AGIR Final Conference in Cape Town in March 2023, and conducted virtual and in-person interviews with Parma.</li> <li>- Detail and data on waste management system and associated business model shared with research team.</li> <li>- Desktop research for review of global best practices in waste management and business models completed.</li> <li>- Complementary interviews regarding data and reports shared have been conducted with Pikitup and JG Africa.</li> </ul> <p><b>Next steps:</b> Interview with EISD, compile R&amp;D Report of systems research (reviews of Parma, global best practices and CoJ business model)</p> <p>Perform business modelling of PAYT and hybrid approaches in CoJ</p> <ul style="list-style-type: none"> <li>- Data collection and systems research to inform modelling</li> </ul> <p><b>Next steps:</b> Model financial implications of implementing PAYT and hybrid approaches in CoJ, compile system and financial modelling report</p> <p>Communicate findings</p> <ul style="list-style-type: none"> <li>- Potential forum for sharing preliminary findings with waste management stakeholders identified</li> </ul> <p><b>Next steps:</b> confirm details for 1<sup>st</sup> stakeholder feedback and engagement workshop. Plan and hold 2<sup>nd</sup> stakeholder engagement workshop to present conclusions and recommendations from business modelling.</p> <p>Other</p> <ul style="list-style-type: none"> <li>- Presented learnings from International Cities’ Partnerships at the COJ IR Roundtable Virtual Dialogue in November 2022.</li> <li>- Presented learnings and CAP pilot project at COJ GSPCR Brown Bag session on 16 February 2023.</li> <li>- Shared the ICP AGIR Final Conference, Cape Town 23 March 2023 presentation with full Joburg ICP team &amp; submitted close-out report to COJ</li> <li>- Developed and submitted close-out reports for both Parma study trip and Johannesburg study trip to COJ.</li> </ul>						
<b>Funds disbursed</b>	<table border="1"> <tr> <td>Workshops/stakeholder engagement (for waste data/systems research)</td> <td>€ 300</td> </tr> <tr> <td>Data collection, system review and analysis</td> <td>€1 500</td> </tr> <tr> <td>Research &amp; Development Report &amp; Recommendations</td> <td>€1 200</td> </tr> </table>	Workshops/stakeholder engagement (for waste data/systems research)	€ 300	Data collection, system review and analysis	€1 500	Research & Development Report & Recommendations	€1 200
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<b>Financial sustainability</b>	<p>The cost of the research &amp; development and systems modelling work being undertaken by UJ was estimated at R 200 0000 (€9 685). The ICP financial award (€5 000) is greatly appreciated in initiating this project, as is the in-kind support and</p>						

	<p>generous donation of expertise and labour of the UJ research team. The research therefore needs to contribute to and support the City of Joburg and the UJ researchers' study of area.</p> <p>Moreover, the ICP CAP project is expected to provide evidence to inform the rollout of KAYT alongside catalysing the up-scaling of feedstock for CoJ's biodigester in the long term. The cost of which is budgeted at R10 000 000 (€484,278).</p>	
<p><b>Contributions by different counterparts</b></p>	<p>City of Parma – knowledge sharing on data management and financial model of PAYT approach, as well as composting</p> <p>City of Joburg – project management (GSPCR) and knowledge sharing on CoJ's current business model, waste collection and management, and data management systems (EISD &amp; Pikitup). Initiating and strengthening active participation in networks, such as AEPW and SA Plastics Pact.</p> <p>University of Johannesburg – project secretariat and research agent: data collection, analysis, modelling and reporting. Facilitating and strengthening networks especially quadruple helix (government, industry, community, academic) collaboration.</p>	
<p><b>Impact of ICP AGIR</b></p>	<p>Knowledge exchange and cooperation between City of Parma, City of Joburg and University of Johannesburg.</p>	<p>Peer learning and potential leapfrogging towards enhancing waste management, circular economy principles, community participation and environmental protection.</p>
	<p>City of Joburg joined the SA Plastics Pact.</p>	<p>The CoJ became the second metropolitan municipality to join the SA Plastics Pact. Commitment to transform the way that the SA makes, uses and disposes of plastic by meeting four world-leading targets by 2025.</p> <p>"The City of Johannesburg is committed to world class service delivery for our customers. This includes the provision of a clean and healthy environment which is devoid of plastic pollution. The transition to a job creating circular economy is at the forefront of our thinking, and being part of the SA Plastics Pact, which is a hub of collaboration and innovation, is an intuitive next step for us to take," says Khosi Baker, Director: Waste Management and Regulation City of Johannesburg.</p>
	<p>Introduction facilitated between CoJ EISD and Waterfall City</p>	<p>Potential local future partnerships enhancing</p> <ol style="list-style-type: none"> <li>1) Organic Waste to Compost and</li> <li>2) Reporting on waste being diverted from landfill.</li> </ol>
	<p>Data collection and analysis</p>	<p>Recommendations will be proposed to improve the CoJ's data ecosystem with regards to data collection, management and storage.</p>
	<p>Report on business case for K/PAYT or hybrid approach in Joburg.</p>	<p>Recommendations from business modelling will</p> <ol style="list-style-type: none"> <li>1) Be absorbed into CoJ's current processes to augment operations and campaign management where possible,</li> <li>2) Be used to inform CoJ business planning, and</li> </ol>

		3) Serve as a basis to update the CoJ's business model and catalyse in partners and funding support.
Stronger involvement in collaborative networks where both UJ and CoJ are members	<b>Next Steps</b>	<ol style="list-style-type: none"> <li>1) AEPW: pilot phase to test collaborative models regarding improved integration of informal reclaimers.</li> <li>2) SA Plastics Pact: Update on green procurement guidelines at the provincial level.</li> </ol>
New participation and mainstreaming; including exposing and capacitating more CoJ officials on circular economy and alternative waste management principles		<ol style="list-style-type: none"> <li>1) CoJ participated in the African Circular Economy Network event, part of the Horizon2020 JUST2CE project in March 2023.</li> <li>2) Further linkages established between CoJ and the Reclaim, Revalue, Reframe Project - Waste Reclaimers research in April 2023.</li> <li>3) CoJ was invited to participate in the World Circular Economy Forum 2023 in Helsinki in June 2023.</li> </ol>
Complement, align and support other collaborative projects in CoJ		<p>To divert all types of organic waste from landfill</p> <ol style="list-style-type: none"> <li>1) EISD's biodigester plant (in progress).</li> <li>2) UKAID CAI Programme to divert green organic waste (garden waste) from landfill to compost.</li> <li>3) Treatment of organic food waste into biogas (waste to energy).</li> <li>4) CoJ's Waste Picker Integration programme is continuing to expand on partnerships for the buy-back of recyclables from waste pickers, residents, collectors, reclaimers, and others.</li> <li>5) CoJ's Climate Action Plan supported by C40.</li> </ol>
On-going engagement sessions between Parma and Joburg anticipated		<ol style="list-style-type: none"> <li>1) University of Johannesburg requested City of Parma facilitate introductions between researchers at the University of Johannesburg and colleagues at the University of Parma/Sauber.</li> <li>2) UJ invited the University of Parma/Sauber to present an online public lecture on their ongoing biochar research.</li> <li>3) Pikitup to invite the City of Parma to present an online knowledge sharing session on consistent citizen education &amp; awareness programmes to stakeholders from Pikitup, EISD, Group Communication and Marketing and UJ.</li> <li>4) Pikitup to invite the City of Parma/ Compo sharing to present an online knowledge sharing session on composting to stakeholders from Pikitup, EISD, Joburg City Parks and Zoos, Joburg Market and UJ.</li> </ol>
Participate in provincial collaboration engagements		<ol style="list-style-type: none"> <li>1) CoJ and UJ will present the outcomes of the Joburg-Parma ICP project with other cities and spheres of government within the Gauteng Province at a symposium in October, via UJ's existing collaboration with the Gauteng</li> </ol>

		<p>Department of Agriculture, Rural Development and Environment (GDARDE) on the theme of integrated waste management.</p> <ol style="list-style-type: none"> <li>2) The research and learnings shall benefit a broader audience, including Gauteng Province, the City of Ekurhuleni and two district municipalities which were not able to participate in the ICP directly.</li> <li>3) Enhance Intergovernmental relations (IGR).</li> <li>4) Motivate for exploring future provincial collaboration and shared infrastructures. Can draw further from the Parma &amp; Province of Reggio Emilia experience.</li> </ol>
<p><b>Ongoing and future plans</b></p>	<p>The later project phases:</p> <p>Piloting customer education and separation of wet and dry waste through KAYT system.</p> <p>The piloting of composting and biodigester options to beneficiate organic/wet waste will be implemented by Pikitup and CoJ, with data shared with the UJ-PEETS to inform collaboration.</p> <p>Enhanced integration of formal and informal separation for job creation. For waste reclaimer integration models to be sustainable, they should form part of the integrated waste value chain. This includes developing better coordinated programmes and health and safety controls around landfills. Clean, high-value recyclable materials are to be separated at source to generate additional income for waste reclaimers.</p>	

## ANNEX 1 – Photos



*Figure 1 Workshop*



*Figure 2 KAYT Discussion*





Figure 3 Recycling Coop in Joburg



Figure 4 Workshop

## ANNEX 2 – Evidence

### ICP AGIR Matters Arising: Action Items

Area	Action	Responsible	Status
Progress meeting	Schedule a follow-up call in the next 2 weeks	Elmarie	Complete
Repository: Data inputs	Share relevant documents Send to <a href="mailto:mbalij@uj.ac.za">mbalij@uj.ac.za</a> cc <a href="mailto:nickeyjvr@uj.ac.za">nickeyjvr@uj.ac.za</a>	All	In progress
Waste Characterisation study Alliance to End Plastic Waste (AEPW) data	Share data report	Kirsten	High level completed On going
follow-on: inclusion of AEPW logo	Share AEPW Logo	Mbali to request	Follow-up
Parma PAYT	1. Introductions: Armesh & Ulisse (Parma) 2. Share presentations currently available	Kate Kate	Complete Complete
Follow-on Parma PAYT	1. Ulisse to share PAYT documents 2. MS Teams meeting to unpack documents 3. Face-to-face meeting in Cape Town, March 4. Face-to-face meeting in Parma, April	Kate to follow-up Armesh	Complete
<b>Research Kick-off meeting</b>	Project Scoping. Unpack documents UJ Internal meeting held. Armesh's student briefed	UJ, COJ & Parma  UJ Internal	Complete
CoJ Waste Data Management	1. Share waste KPI reporting	CoJ	Shared to Teams
Interview officials	Permission Request letter sent to CoJ	Kate	Complete
Current S@S cost / business model	Share available data	Samu	Complete

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Area	Action	Responsible	Status
Final Conference in Cape Town 23 March	Full presentation shared with all		Complete
SA Plastic Pact Supporting Membership	CoJ became supporting member. Follow-up meeting held with GreenCape in May. Press release confirmed		Ongoing
ICP AGIR CAP Paperwork a) Invoice ICP b) Broad project outline; deliverables & reporting (quarterly)	Prepare a) Invoice 1 payment confirmed. complete b) <b>Submit invoice 2 - June</b>	Nickey & Kate  Nothile	<b>To do</b>
CoJ KAYT Project Research Close-out a) ICP AGIR close-out report June (Stacey & Kate inputs circulated) - Comment by 6 June	a) Report confirmed b) Compile evidence against deliverables - data repository; - Charter signed - SLA signed (Nothile)  Send link to download data repository to <a href="mailto:andreas.sieren@icp-agir.eu">andreas.sieren@icp-agir.eu</a> ; <a href="mailto:RD@ramboll.com">RD@ramboll.com</a> with close-out report	Kate  Stacey	Inputs due 6 June  <b>Submit report to Rambo ll by 15 June</b>

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Area	Action	Responsible	Status
ICP AGIR CoJ KAYT Project Charter (addendum) Start date: April-ish End date: 6 months from signing	Agreed	Stacey resent to all. Amesh to be aware of start & end dates	Complete Annex to SLA
<b>SLA</b>	EISD signed <b>WF: send to UJ Legal &amp; sign-off (Nothile)</b> - report back provided	<b>ATT: Nickey / Elmaire</b> Stacey	
<b>Feedback on research progress/ deliverables and evidence</b> - <b>Develop Agenda for EISD meeting and schedule interviews (Amesh's team)</b> - Research in progress – docs with notes - Global best practise – draft report 60 pages, country case studies incl Italy Parma > hybrid, Singapore, Ethiopia – waste management & treatment, waste to energy - Outline to students – upstream, disposal tech, circular econ. S@S and PAYT - COJ info collated in doc			30 May

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Area	Action	Responsible	Status
<b>Conduct systems research of K/PAYT and other waste management business models</b> - review of the City of Parma's PAYT business model (data acquired) - review of global best practices (complete – develop slide deck) - review of CoJ's current business model with regards to waste management (data acquired)	Been reviewed. Will be utilised in modelling phase.  Present global best practises to EISD forum, invite Andreas and Ullisse for interest.	7th floor to confirm date w Mokgadi	In progress
Set dates for engagement & data collection	Pikitup (Samu) - Complete JG Africa (Jeff) - Complete	Amesh	Complete
Research engagements with EISD Khosi Baker, Mvuselelo Mathebula, Simphiwe Memela, Mokgadi Maphoto	Agenda Schedule interviews Compile list of data sets required for EISD.	<b>UJ team to engage Mokgadi/EISD</b>	<b>To do</b>
Evaluate waste audit research results to determine waste value chains and potential, informed by existing Alliance to End Plastic Waste (AEPW)	In progress	UJ team	In progress
Conduct financial modelling to establish value chains and ROI and determine if there is a business case for PAYT or hybrid approaches in CoJ.	<b>Yet to happen</b>	<b>UJ team</b>	<b>To do</b>

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	Area	Action	Responsible	Status
	<b>Collaboration with GARDE and UJ</b>	UJ PEETs collaborating with GARDE Theme integrated waste management Confirm: Share outcome of ICP work with other cities in Gauteng Objectives: Disseminate to broader audience Potential funding opportunity  26 October symposium. 09:00 – 15:00 CoJ to present/with researchers ICP case study. Hybrid meeting.	Nickey  Send diary invites to CoJ (Stacey)	
	<b>Other opportunities</b> - Additional ICP funding   deadline 15 June - EU Horizons (Kate follow-up for contact details re Hamburg)	Amesh to draft proposal  EISD suggestion : Cost of 2 bin system/ S@S. Tangible strategy that council could adopt with the aim of catalysing more funding opportunities. Other: enhanced data management system; Pilots		<b>In progress</b>