RETHINK WASTE

RETHINKING MUNICIPAL TARIFF SYSTEMS
TO IMPROVE URBAN WASTE GOVERNANCE

Bitetto case study

Focus group workshop, Sant Just Desvern

1st December 2021

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- Next steps for the pilot
- Main conclusions and lessons learnt

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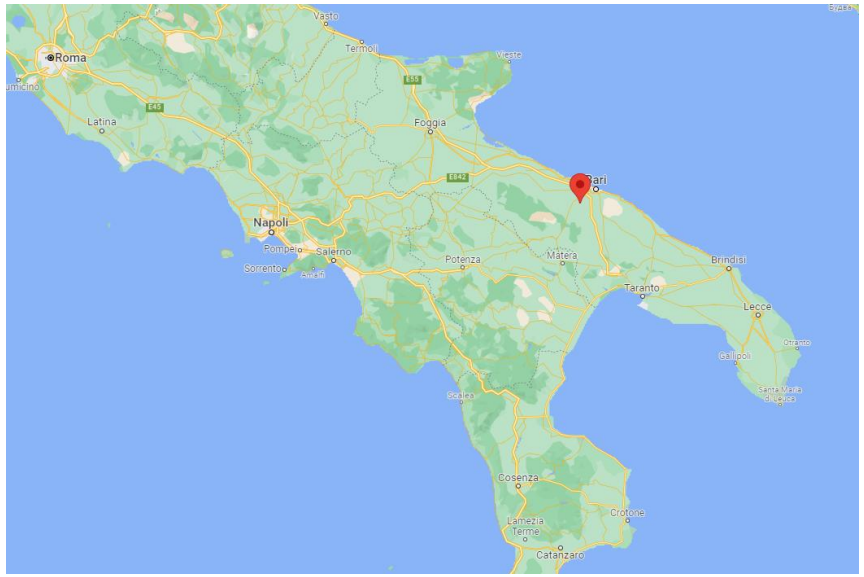
The municipality of Bitetto in a nutshell



Population (inhabitants)	11,923
Surface (Km²)	33.95 km²
Altitude (above sea level)	139 m
Density (inhabitants/Km²)	354
Domestic Users (number)	4,217
Commercial activity	652
Urbanistic features (predominant urban fabric)	N/A

GENERAL DATA (2019)

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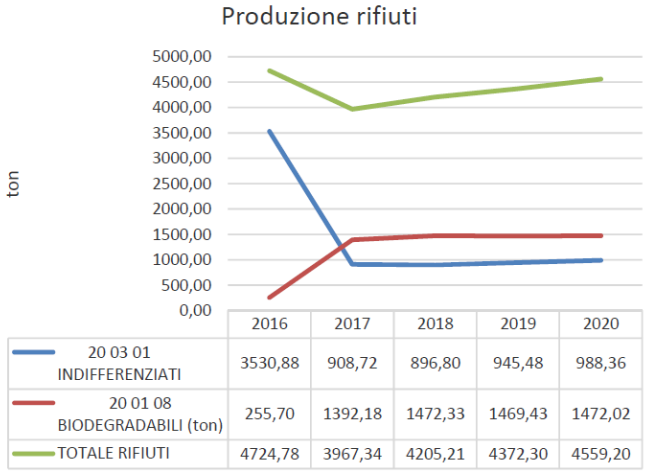
Current waste collection system and waste generation

STATUS QUO OF WASTE COLLECTION (2019)

- Domestic (different zones) and non-domestic users (single area) door-to-door of each fraction. RFID technology since 2016 for all.
- PAYT introduced in 2021 with KAYT approach

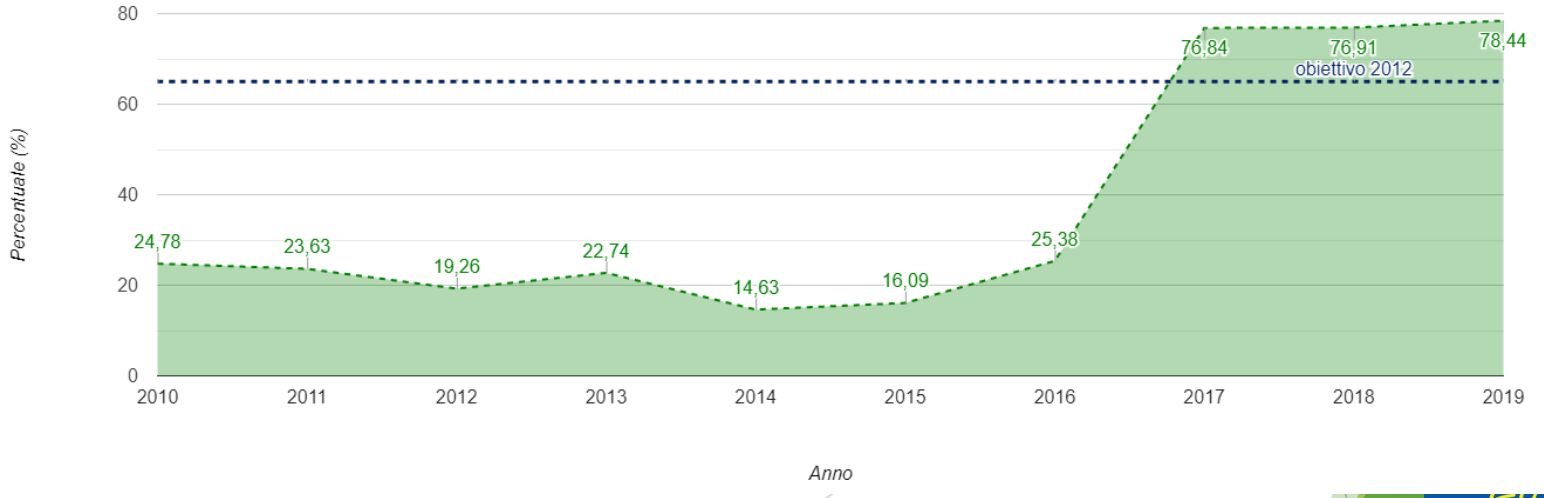


	2016	2017	2018	2019	2020
20 03 01 INDIFFERENZIATI	3530,88	908,72	896,80	945,48	988,36
20 01 08 BIODEGRADABILI (ton)	255,70	1392,18	1472,33	1469,43	1472,02
TOTALE RIFIUTI	4724,78	3967,34	4205,21	4372,30	4559,20

- Evolution of separate collection

(last 10 years) ISPRA data →

Waste generation (total, Kg)	4,385,680
Waste production per capita (kg/inhabitants/year)	367.34
Quantity of unsorted waste per capita (Kg)	79.29
Separate collection rate (%)	78.44%
Waste tariff	70% fixed
KAYT system	30% of tariff



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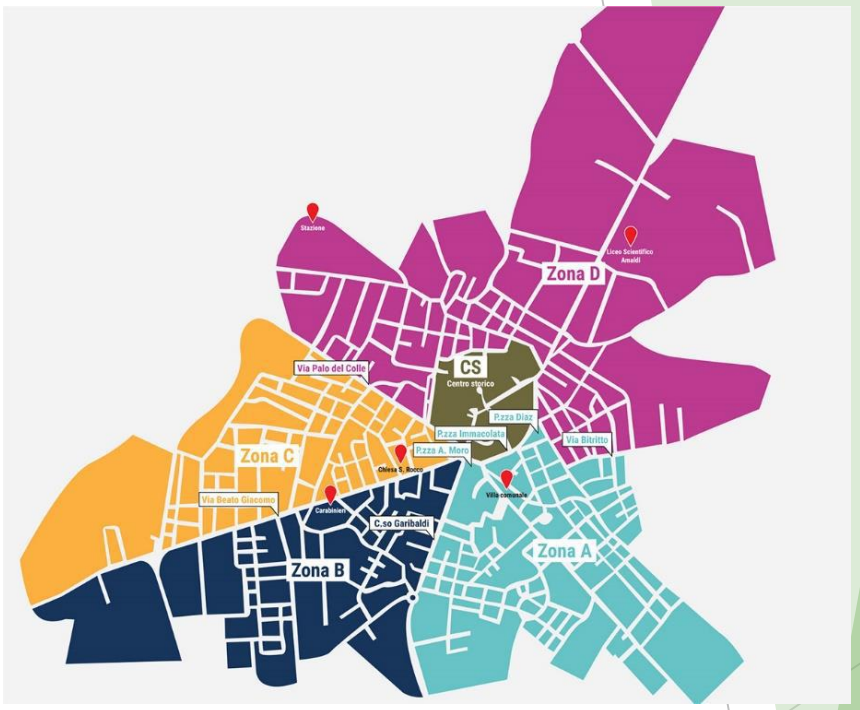
The pilot scheme implemented

PILOT AREA

- Pilot area is the whole Municipality, involving 4,217 domestic users divided into 5 zones, A-B-C-D and historical centre
- Pilot from June 2021 to June 2022. Key objectives:
  - Test the KAYT approach in use since 2021
  - Improve separate waste collection
  - Raise awareness of the KAYT model in terms of tariffs
  - Increase awareness of PAYT ("pay what you throw") through the KAYT approach ("know what you throw").
- RICICLO E VINCO! competition – comunication with users via Whatsapp, telegram, sms
- By end 2021 Municipality will issue public tender to invite shops to participate in Riciclo e Vinco initiative
- Vouchers to be implemented in 2022



The pilot scheme implemented

IMPLEMENTED MODEL: KAYT experimentation June 2021 – June 2022

- **First engagement letter:** sent to all domestic users, inviting them to register by end of May 2021. In just over 2 weeks 220 users registered. Deadline extended to end of June with over 250 registered users
- **Engagement of local shops in the rewarding system:** in progress
- **Messaging system:** first message launched in May 2021, messages target specific differentiated waste questions to improve user knowledge, with some general info. Will intensify messaging during Dec 2021 and first term of 2022, with additional targeted messaging.
- **Assignment of eco-points and vouchers:** GAMIFICATION: eco points given based on messaging interaction, correct answers, virtuous behaviour. Points will give access to vouchers used in local shops

ESPORRE CARTA		52
	da 0 a 15	0
	da 16 a 26	+ 0,5
	da 27 a 41	+ 1
	da 42 a 46	+ 2
	da 47 a 52	+ 1,5

ESPORRE RESIDUO SECCO		52
	da 0 a 5	- 2
	da 6 a 12	0
	da 13 a 26	- 0,5
	da 27 a 46	- 1
	da 47 a 52	- 2

ESPORRE VETRO		52
	da 0 a 10	0
	da 11 a 52	+ 0,5

ESPORRE PLASTICA		52
	da 0 a 5	0
	da 6 a 52	+ 0,5

ESPORRE ORGANICO		156
	da 0 a 125	0
	da 126 a 156	- 1

	DA	A	PUNTEGGIO
Freq. conferimento CARTA	0	0,3	0
	0,3	0,5	0,5
	0,5	0,8	1
	0,8	0,9	2
	0,9	1	1,5
Freq. conferimento imballaggi in VETRO	0	0,1	0
	0,1	1	0,5
Freq. conferimento imballaggi in PLASTICA E METALLI	0	0,8	0
	0,8	1	0,5
Freq. conferimento ORGANICO	0	0,8	0
	0,8	1	- 1
Freq. conferimento INDIFFERENZIATO	0	0,1	- 2
	0,1	0,23	0
	0,23	0,5	- 0,5
	0,5	0,9	- 1
	0,9	1	- 2
Passaggi CCR	0	12	0
	12	10.000	0,5

	Lieve	Grave	Punteggio	Ignorate
Segnalazioni *(ogni segnalazione - 0,1 pt)*	1	2	- 0,1	2% delle letture

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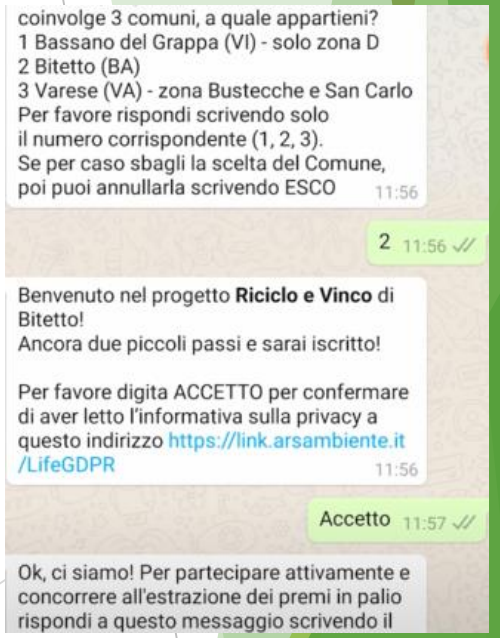
RESULTS OF KAYT / PAYT STRATEGY IMPLEMENTED

- USERS ENGAGEMENT (1/2)

Domestic users	4,217 domestic users
Number of users subscribing to the platform after 3 months from the starting point, and unsubscriptions	251 domestic users (5.95%) In just over 2 weeks 220 subscriptions Total unsubscriptions since beginning: 4 (1.59% of subscribed users)
Summary of subscriptions per channel (and unsubscriptions)	Subscriptions 220 (87.65%) WhatsApp 8 (3.19%)Telegram 23 (9.16%) SMS Unsubscriptions 4 (WhatsApp)
Number of commercial activities engaged	In progress
Duration of the intensive / follow up KAYT activities	KAYT model integrated in the tariff system in 2021 based on pre-pilot 2020 data 2021 will give us information regarding the KAYT model Intensive phase Dec 2021 – Mar 2022



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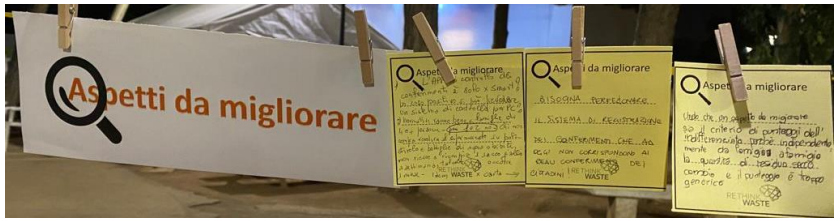
RESULTS OF KAYT / PAYT STRATEGY IMPLEMENTED

- USERS ENGAGEMENT (2/2)

Additional tools used after the main launch tool (e.g. referral, promotion, videos, events…)	Video to inform citizens of Riciclo e Vinco initiative Leaflet handed out door-to-door Video explaining PAYT/KAYT to citizens Toll-free number and WhatsApp number so that citizens can call for info Social event held on 27th September – presented initial results and asked for feedback from users Video elicitation *Evaluation surveys are in progress – about 35 done so far*



RESULTS OF KAYT / PAYT STRATEGY IMPLEMENTED

- USERS INTERACTION

Number of "campaigns" sent by the messaging platform which require an interaction: total in 6 months	6 general campaigns (quiz questions sent to all registered users regarding separate waste collection key issues e.g. how to recycle Tetrapack, Batteries, etc.) 35 individual campaigns (for now these are the evaluation surveys)
% of users interacting, in 2 days after launching the campaign message (48H)	58.50%
% of users answering correctly to short questionnaires	90.24%
Number of "individual KAYT" campaign launched	In progress
Total messages sent by the platform	11,465 (May-Nov 2021)
Total messages sent by users	5,348 (May-Nov 2021)

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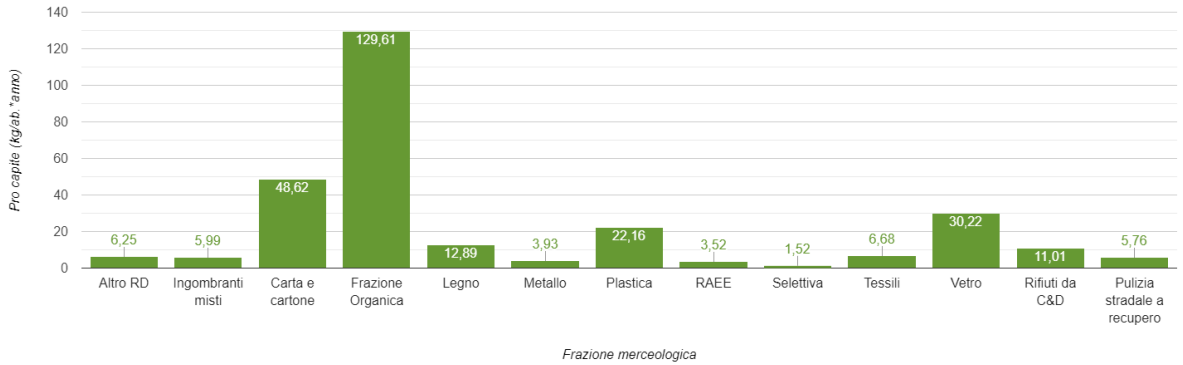
RESULTS OF KAYT / PAYT STRATEGY IMPLEMENTED

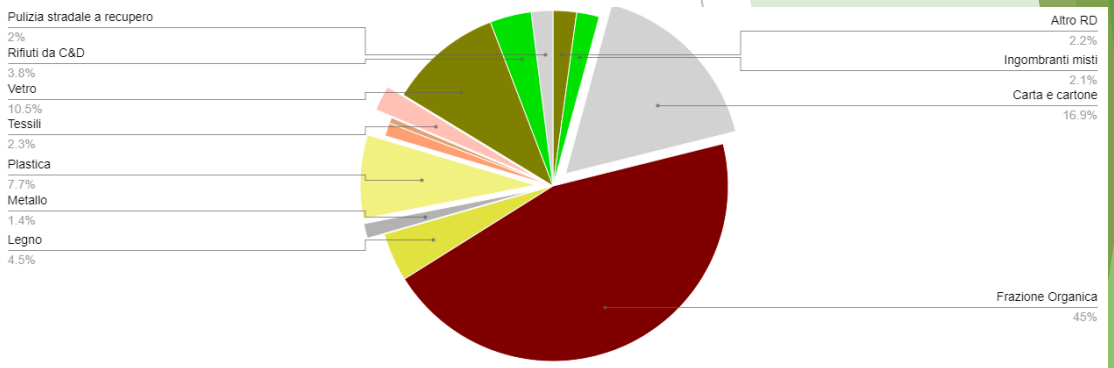
- SEPARATE WASTE COLLECTION AND PAYT DATA

		before the intervention (2020)	Mid-term results (now, date)
QUANTITATIVE	**Total waste generation (in the whole city and in the pilot area, if possible to estimate) (Tn)**	4559.20	n.a.
	Waste generation per capita (idem)(Kg/inhab.year)	381.87	n.a.
	Rate of separate collection (average of the municipality) (%)	78.32%	n.a.
QUALITATIVE	**Quality of separate collection in the pilot area (% of impurities)**	Improper materials in organic waste 0.0345 kg/kg	n.a.
	Composition of residual waste in the pilot area	45% organic 16.9% paper and cardboard 7.7% plastic 1.4% metal	
RFID	**Number of RFID reading of residual waste compared to the same period of the past year: users participating, and users not participating**	July-August-Sept 2020 24,454 unsorted waste 17,123 paper and cardboard 72,710 organic 4,731 glass 7,427 plastic and metal	July-August-Sept 2021 22,922 unsorted waste 17,380 paper and cardboard 67,769 organic 6,123 glass 10,661 plastic and metal
KAYT	**Evaluate the difference between the variable part of the tax paid (or to be paid in the future) between “best recyclers” and “bad recyclers” before and after KAYT**	28% “best recyclers” 46% “bad recyclers” 26% neutral	n.a.

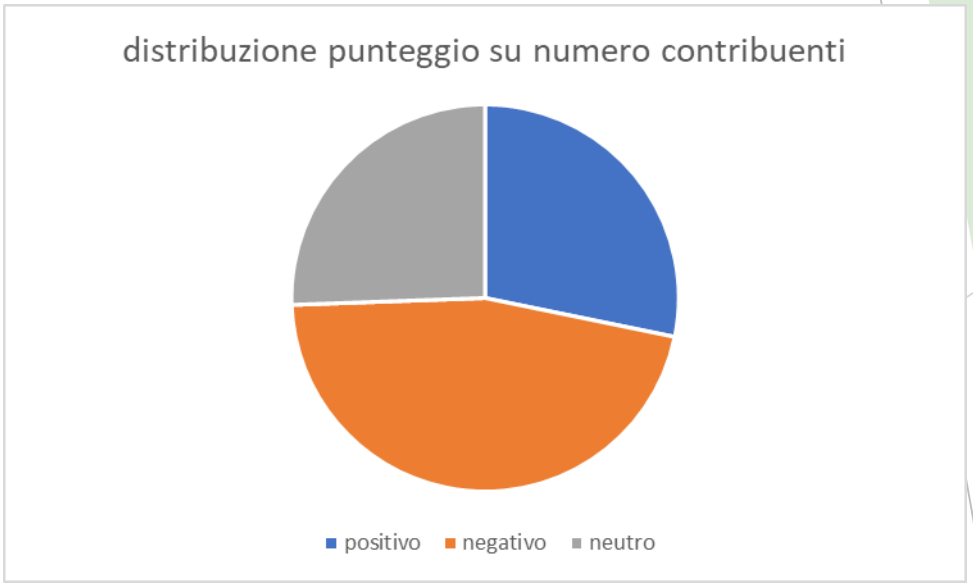
RESULTS OF KAYT / PAYT STRATEGY IMPLEMENTED

SEPARATE WASTE COLLECTION AND KAYT DATA





punteggio	numero contribuenti	importo tarip (malus)	importo tarip (bonus)
-0,5	828	6.026,22 €	
-1	233	3.332,00 €	
-1,5	120	2.301,95 €	
-2	758	17.927,27 €	
-2,5	5	169,73 €	
-3	5	193,51 €	
0	1078		
0,5	731		-5.557,24 €
1	277		-4.238,95 €
1,5	121		-2.849,94 €
2	51		-1.692,61 €
2,5	9		-356,58 €
3	1		-56,90 €
totale	4217	29.950,68 €	-14.752,22 €



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SWOT ANALYSIS

STRENGHTS	WEAKNESSES

• RFID technology in use since 2016
  • Availability of exact data
  • Domestic users already carry out a good separate waste collection
• Good citizen response to user engagement campaign
	• Covid lockdown and restrictions have impacted on produced waste

OPPORTUNITIES	**THREATS**
• KAYT model experimentation coincides with 1st year of KAYT tariff • Improvement of waste collection through big data analysis • Statistical analysis to assess effectiveness of KAYT campaign	• Covid lockdown and restrictions - limited citizen engagement and impact on waste production • Reduce awareness and comunication actions • Not carry out constant controls

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NEXT STEPS FOR THE PILOT

- Summarized next steps for the pilot
  - Public tender to invite shops to participate in “Riciclo e Vinco” initiative
  - Increase platform general messages
  - Define individual target messaging activities and put into action during intestive phase
  - Conclude evaluation surveys and carry out analysis

MAIN CONCLUSIONS AND LESSONTS LEARNT

- List of main conclusion(s) and lesson(s) learnt
- Importance of constant awareness raising measures. Citizens need to be constantly informed and trained on how to carry out a **quality** separate waste collection and know that controls are in place to monitor their performance.

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Thank you!

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Ajuntament de Sant Just Desvern

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Naturalment Collserola