

A long, narrow barge is shown from an elevated perspective, moving along a wide river. The barge is covered with a dark material, likely solid waste. The river is dark, and the sky is a mix of blue and orange, suggesting dusk or dawn. In the background, there are industrial buildings and cranes along the riverbank. The text 'PROFITABLE ECOLOGY' and 'Drago Projekt, Beograd' is overlaid in the top right corner.

PROFITABLE ECOLOGY
Drago Projekt, Beograd

**PROFITABLE ECOLOGY,
AFFORDABLE, SIMPLE AND
RATIONAL TRANSPORT &
TREATMENT OF SOLID WASTE
FOR ALMOST 50%
OF SERBIA'S POPULATION**

WASTE MANAGEMENT WITH RIVER TRANSPORT

Belgrade, February, 2015.

Serbia has today (2015.) less than 2% of its waste management under modern practices,

Serbia has about 2,000 km of navigable waterways, and with this proposal solves in a state of the art way the country's waste management, namely on:

- 30% of the territory, and for***
- 43% of the population***

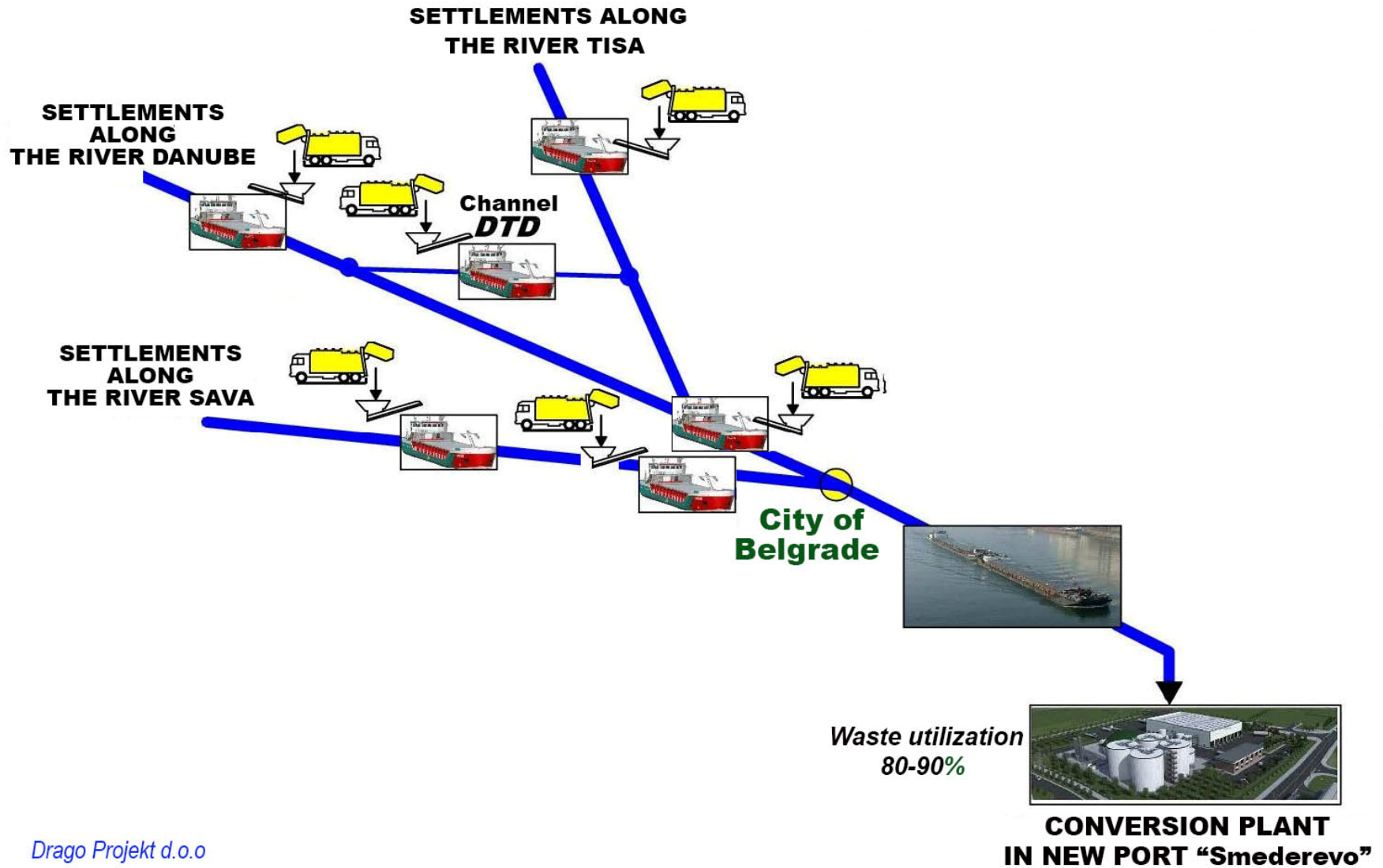
in a fast, simple, and profitable manner.

Who would finance this solution ?

For this program, there is a great interest of investors as a Public-Private Partnership or as a Concession.

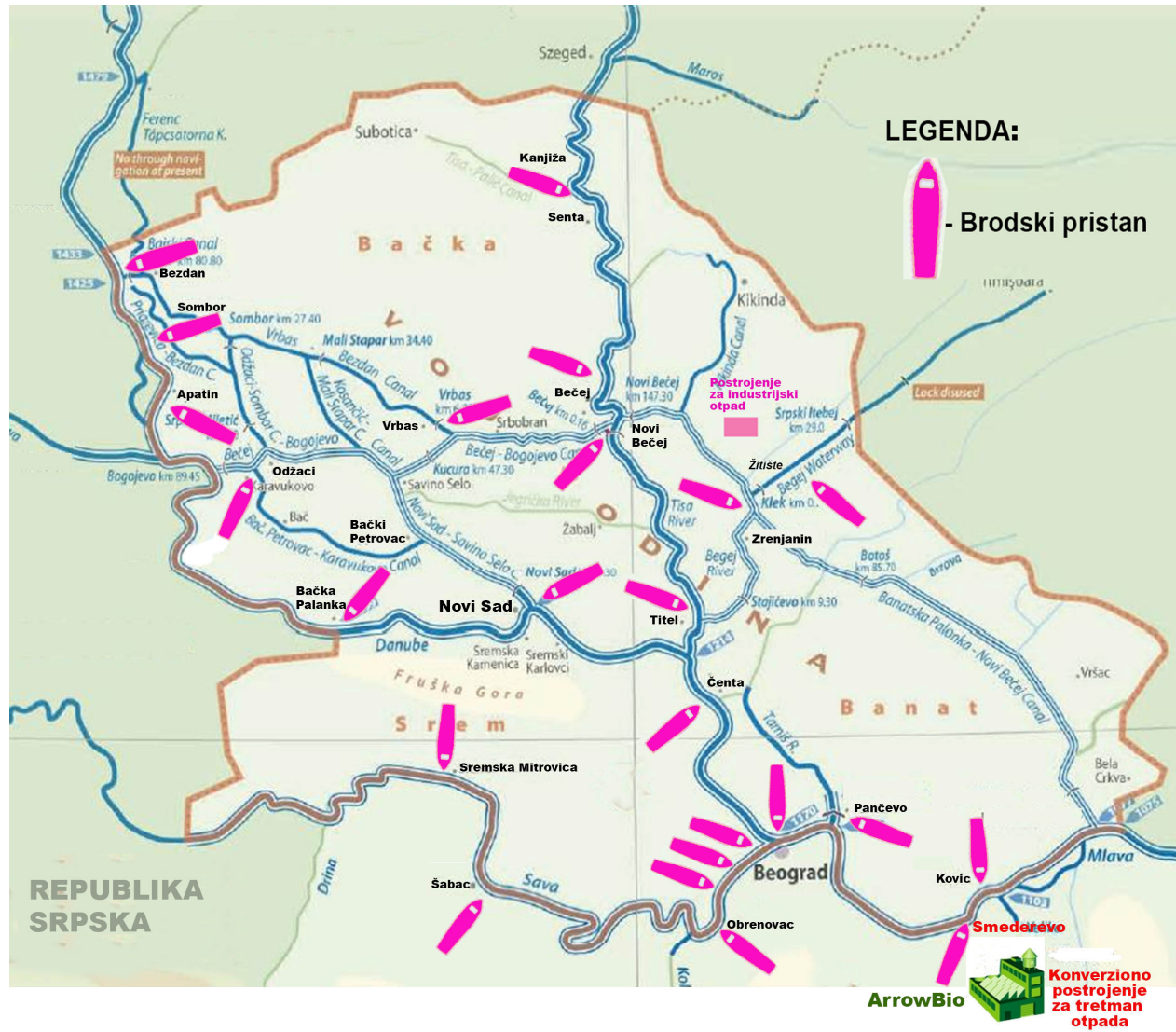
INVESTMENTS:	EUR
Conversion plant for waste treatment in Smederevo	
Construction of 50 harbors with equipment for reloading	
Adaptation of 10 barges to transport waste with equipment for reloading	
Mobile plant for screening the “old” waste (25 sets)	
Total:	252,000.000

50% OF SERBIA'S POPULATION LIVES AROUND 3 NAVIGABLE RIVERS



Drago Projekt d.o.o

Serbia has a large, navigable rivers and may allow river transport solid waste to the treatment plant in Smederevo



QUANTITIES OF WASTE

The rivers : Danube, Sava, Tisa, as well as the channels of DTD and « Bega », are adjacent to 50 municipalities¹:

Number of residents:	3,221,083
Number of villages:	485
Daily amount of waste:	2,409 t
Annual amount of waste:	879,354 t

Amount of « old » waste that would be transported by river

Since we would not have a new landfill, dumping and burial of wastes, we have a chance to gradually purify what we polluted in the previous decades.

Again, we take into account the 50 municipalities adjacent to the rivers Danube, Sava, Tisa, as well as the channels DTD and Begej, the quantities of waste from the past 40 years of unsanitary disposal.

Number of residents:	3,149,664
Number of years:	40
Annual production of discarded waste from 50 municipalities:	1,000,000 t
Quantities of waste at landfills²: 40 x 1,000,000 =	40,000,000 t
Inert (decomposed) 60 % of waste	24,000,000 t
For processing remains:	16,000,000 t

¹ View the list of municipalities that are located at the end of this presentation

² According to the national strategy 2010-2019, Serbia annually produces 2,374,374 (with 7,443,183 inhabitants)

Revenue from « new » waste

Amount of waste (t/day)		2.409	Value (EUR)
Annual total (t)		879.354	
Type of municipal solid waste	Entry (%)	Entry (t/year)	
Paper	10,00		
Cardboard	10,00		
Ferromagnetic metals	3,00		
Nonferromagnetic metals	2,00		
Mixed plastics	15,00		
Glass	2,00		
Organic biodegradable materials	43,00		
Biological tissues	3,00		
Wood	3,00		
Sand and gravel	4,00		
Other	5,00		
TOTAL:	100,00		
Biogas - weight – [t/year]			
Biogas - volume – [m3]			
Installed Capacity (MW)/ Gross Elec. En. (MWh)			
Net Installed Capacity (MW)/ Net El.En. (MWh)			
Payment at waste reception, at weighin (10 EUR/t)			
Revenue from “new” waste (per year)			100,401,892

EXPENSE (annual):

Transport of waste by barge to the plant (2 x 300 km x 365 days)	
Gross wages of workers (3 shifts x 100 workers = 300 workers (per year)	
Electricity for own use 10%	
Maintenance and servicing	
Total expense of “new” waste:	19,200,000

Revenue from « old » waste

Total amount of usable waste in landfills (50 municipalities)		16.000.000	Value (EUR)
Type of municipal solid waste	Entry (%)	Entry (tona)	
Paper	5,00		
Cardboard	5,00		
Ferromagnetic metals	3,00		
Nonferromagnetic metals	2,00		
Mixed plastics	15,00		
Glass	2,00		
Wood	1,50		
Sand and gravel	10,00		
TOTAL	43,5		
Revenue from “old” waste			1.365.160.000

Expense:

Construction of 50 sanitary depots for disposal of useless (inert) parts of the waste	
Gross salaries (30 workers x 10 years) x 50 municipalities	
Excavation, screening, and separation of recyclable materials (35 EUR/t)	
Maintenance and repair of machines and sanitary depots	
Total expense from “old” waste :	802.000.000

Conclusion

1. Conversion technology is the future as says its motto “zero waste” and in other words takes full advantage of everything being discarded (70-90%).

This is the motto of the modern world,

2. Since the profitability is extremely high, [reimbursement from the population will be very small](#), so there will be no “wild” landfills.
3. [We did not take into account](#) organic waste from slaughterhouses, agricultural waste with vast amounts of energy, waste that floats on rivers and canals, waste from mowing etc. etc.
4. [Smederevo is becoming](#) a European center for recyclable materials;
5. [Serbia must not miss this opportunity](#), because it is her idea.

God blesses the brave.

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List of municipalities who can supply waste for river transport

No.	Settlement	Number of inhabitants	Amount of waste (t)		Number of villages in municipality
			Annual	Daily	
1	Voždovac	157.152	42.902	118	3
2	Vračar	55.463	15.141	41	0
3	Grocka	83.398	22.768	62	16
4	Zvezdara	148.014	40.408	111	0
5	Zemun	166.292	45.398	124	1
6	Novi Beograd	212.104	57.904	159	0
7	Obrenovac	71.419	19.497	53	28
8	Palilula	170.593	46.572	128	7
9	Rakovica	108.413	29.597	81	0
10	Savski venac	38.660	10.554	29	0
11	Stari grad	48.061	13.121	36	0
12	Surčin	42.012	11.469	31	6
13	Čukarica	179.031	48.875	134	7
14	Obrenovac	71.419	19.497	53	28
15	Apatin	28.654	7.823	21	4
16	Odžaci	30.196	8.244	23	8
17	Sombor	85.569	23.360	64	15
18	Novi Sad	335.701	91.646	251	14
19	Bač	14.150	3.863	11	5
20	Bačka Palanka	55.361	15.114	41	13
21	Bački Petrovac	13.302	3.631	10	3
22	Beočin	15.630	4.267	12	7
23	Bečej	37.209	10.158	28	4
24	Žabalj	25.777	7.037	19	3
25	Srbobran	16.252	4.437	12	2
26	Temerin	28.227	7.706	21	2
27	Titel	15.554	4.246	12	5
28	Ada	16.785	4.582	13	4
29	Kanjiža	24.995	6.824	19	12
30	Novi Kneževac	11.232	3.066	8	8
31	Senta	22.961	6.268	17	4
32	Čoka	11.388	3.109	9	7
33	Žitište	16.786	4.583	13	11
34	Zrenjanin	122.714	33.501	92	21
35	Novi Bečej	23.847	6.510	18	3
36	Vrbas	41.950	11.452	31	6
37	Žabalj	25.777	7.037	19	3
38	Sremski Karlovci	8.722	2.381	7	0
39	Indija	47.204	12.887	35	9
40	Irig	10.717	2.926	8	11
41	Pećinci	19.675	5.371	15	14
42	Ruma	54.141	14.780	40	16
43	Sremska Mitrovica	79.773	21.778	60	25
44	Stara Pazova	65.508	17.884	49	7
45	Kovin	33.725	9.207	25	9
46	Pančevo	122.252	33.375	91	9
47	Požarevac	60.466	16.507	45	22
48	Kostolac	13.604	3.714	10	5
49	Veliko Gradište	17.559	4.794	13	26
50	Golubac	8.161	2.228	6	24
51	Smederevo – city	107.528	29.355	80	48
TOTAL:		3.221.083	879.354	2.409	485