One of the biggest challenges today

LIFE Sustain EuroRoad

an environmentally conscious project with COLAS

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Colas Hungária Zrt.

LIFE – L ' Instrument Financier pour l' Environnement

LIFE is the **EU's funding instrument for the environment and climate action**.
its objective is to contribute to the implementation, updating and development of EU environmental and climate policy and legislation by co-financing projects with European added value.

LIFE 2014-2020

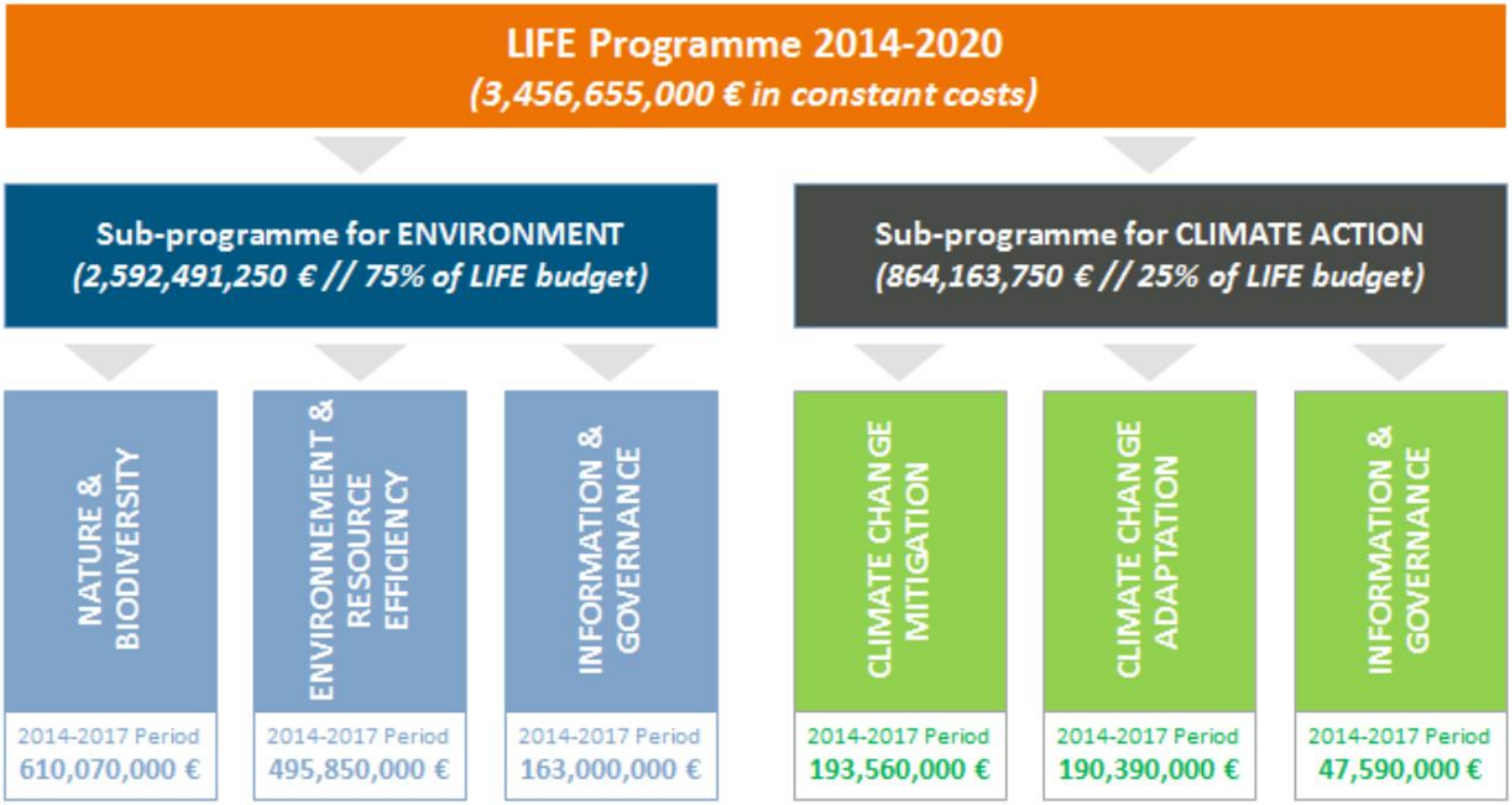
Total budget:	**€ 3,456 billion**
Funding rate:	**60% of eligible costs***
2 sub-programmes:	**Environment & Climate action**

Deadlines & budget of the LIFE 2017 call

Climate Change Action:	**07/09/17**
Environment & Resource Efficiency:	**12/09/17**
Budget for 2017:	**€ 373 million**

* Maximum funding rate except for capacity building project

LIFE – Budget 2014-2020



To put SustainEuroRoad in a nutshell

- WHAT ARE WE DOING WITH THIS SustainEuroRoad LIFE+ Project AND WHERE ARE W GOING WITH IT ?
    - Firstly, development of SEVE software in each partner country:
  - Hungarian version of SEVE is on work with a specific database thanks to feedback from demonstrators (in worksites and in asphalt plants)
    - ✓ Evolution of the thermal model in the asphalt plants for Hungary
      - How much energy does 1 ton of asphalt concrete in Hungary cost ?
      - What parameters enter into account ? (Temperature, %RAP, %water content, electrical part working consumption…)
    - ✓ Change in the energy mix (environmental cost of 1kWh in France ≠ 1kWh in Hungary)
    - In the end, only one European version SustainEuroRoad:
  - With different languages
  - standardization of European database
  - SustainEuroRoad should be led & implemented by European Road Federation

Participants of the Project

- **USIRF : Union of French Road Industry Association**
- **ASEFMA : Spanish Road Industry Association**
- **COLAS Hungary**
- **EUROVIA Germany**
- **ERF : European Road Federation**

Project objectives (1/2)

- LIFE SustainEuroRoad project offers to create and validate an innovative software to drastically reduce the environmental impact of road construction and maintenance in Europe.
  - 2 main targets
    - Reduction of the energy consumption, including fossil fuel and natural resources
    - Reduction of GHG emissions linked to road building and maintaining processes and to the preservation of natural resources

Project objectives (2/2)

- In order to validate these ambitious targets, the software will be tested in several demonstration sites, in 4 countries:
  - Hungary, France, Spain and Germany
    - With different technical requirements
    - And different meteorological conditions

Advantages of the project

- The project will provide a unique tool to decrease the road industry environmental impact by keeping the same technical performance or improving it.
- Local authorities will be able to evaluate the environmental impact between different solutions in the part of adjudication.
- This project will enable the increase of public funds in the environmental issue.
- By limiting the impact of industrial activities on climate change, the project will enable to help European and national authorities to reinforce the legislation and challenge enterprises in the environmental aspect.
- The knowledge acquired will be widely disseminated to project stakeholders and general public.

Expected results

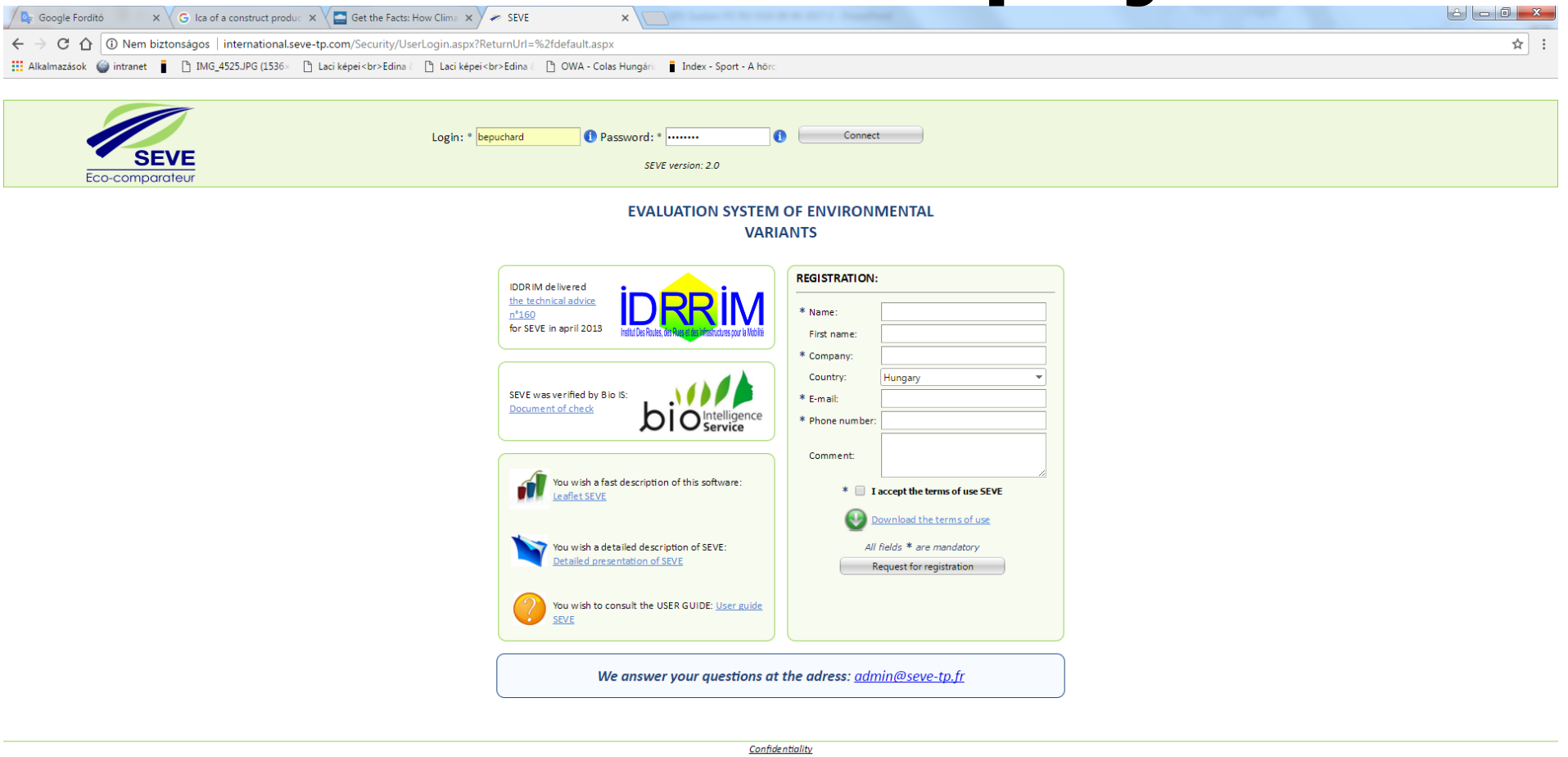
- To increase the integration of environmental assessment in the selection of road project
- To incite road sector to generalize BAT (Best Available Technique) regarding economical, social and environmental aspects
- To deliver a computerized decision tool harmonized at the European level to calculate the environmental impact of road construction and maintenance.
  - The indicators of the software will be:
    - GHG emission (ton eq. CO2)
    - Energy consumption (MJ)
    - Consumption of natural aggregates (ton)

    } Throughout Road Life Cycle

Amended budget of Colas

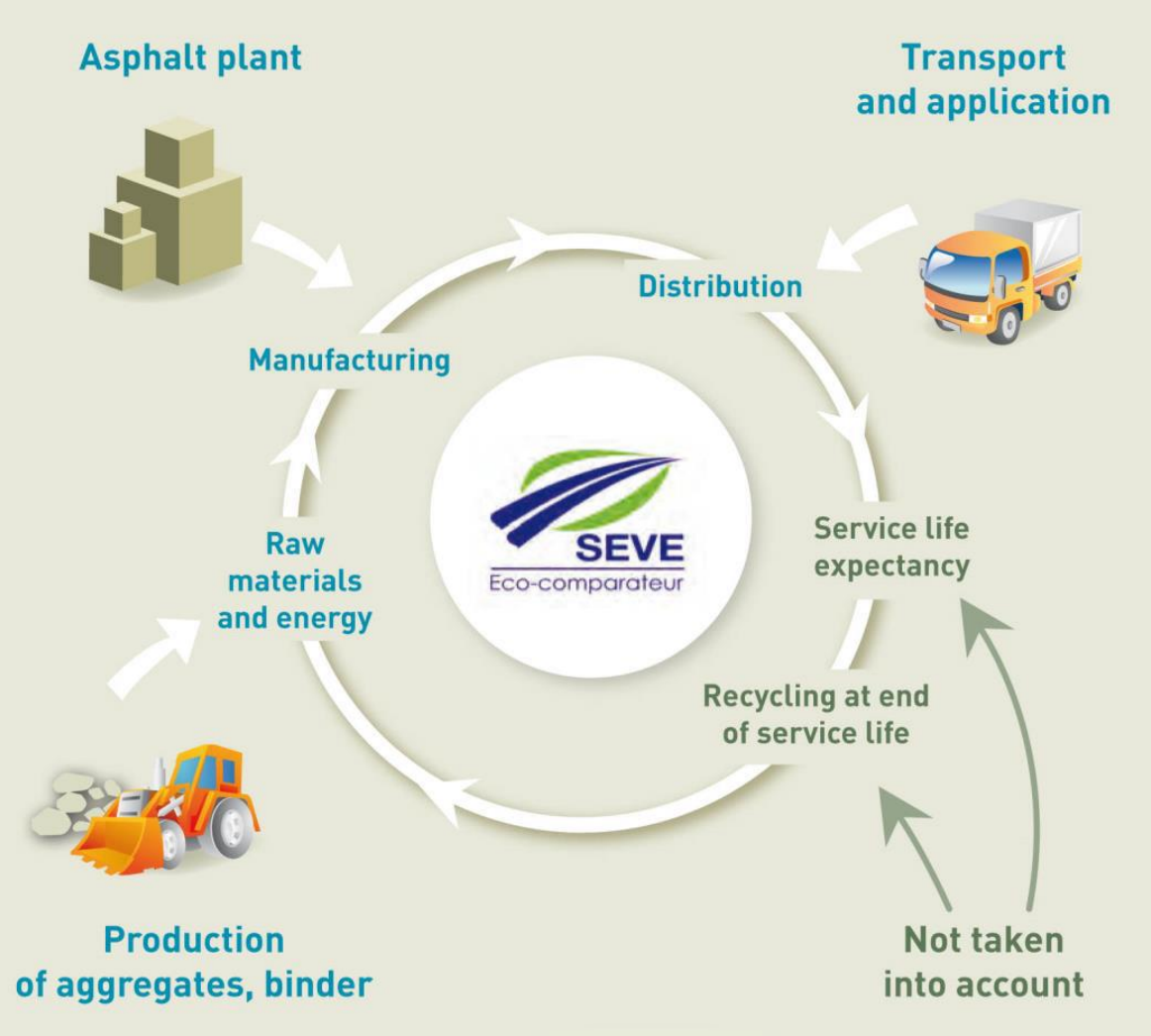
		COLAS							
Budget breakdown categories	Total cost	Initial budget	Costs until 04/2016	%	Costs until 12/2016	%	Foreseen Costs until 05/2017	%	New budget
1. Personnel	443 350,00	21 600,00	18 739,50	87%	19 640,90	91%	21 600,00	100%	
2. Travel and subsistence	79 620,00	13 920,00	1 399,31	10%	1 901,08	14%	3 500,00	25%	
3. External assistance	617 000,00	-	-	-		-		-	
4. Durable goods	-	-	-	-	-	-	-	-	-
4. Depreciated Durable goods	-	-	-	-	-	-	-	-	-
Infrastructure	-	-	-	-		-		-	
Depreciated Infrastructure	-	-	-	-		-		-	
Equipment	-	-	-	-		-		-	
Depreciated Equipment	-	-	-	-		-		-	
Prototype	-	-	-	-		-		-	
5. Land purchase / LT lease	-	-	-	-		-		-	
6. Consumables	34 000,00	-	-	-		-		-	
7. Other Costs	52 180,00	-	-	-		-		-	
8. Overheads	85 830,00	2 486,00	1 409,00	57%	1 507,00	61%	1 757,00	71%	-
TOTAL	1 311 980,00	38 006,00	21 547,80	57%	23 048,98	61%	26 857,00	71%	-
TOTAL ELIGIBLE	1 311 980,00	38 006,00	21 547,80	57%	23 048,98	61%	26 857,00	71%	-

The tool for the project



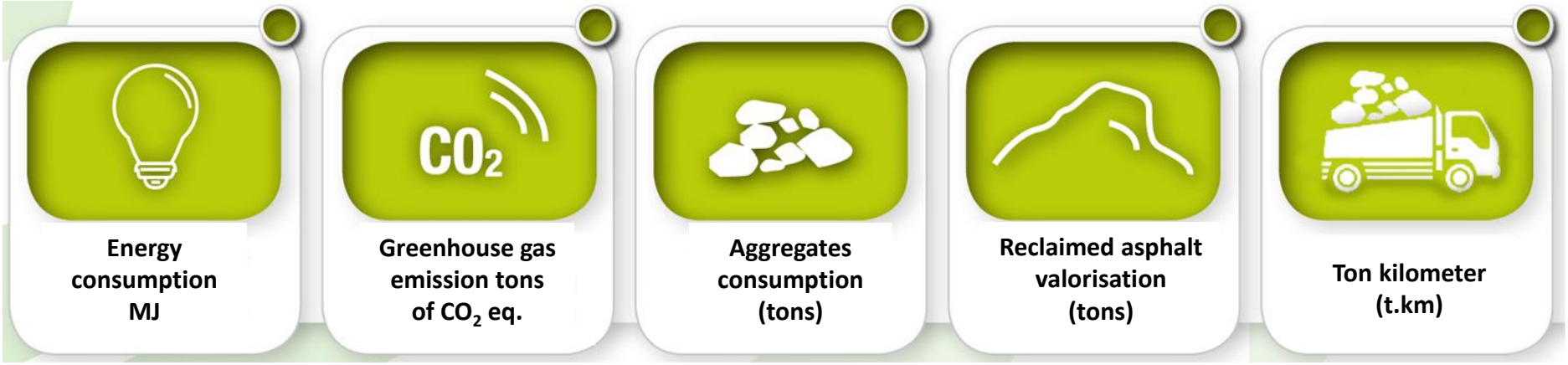
How it works

- Product analysis
- Activity analysis
- Energy assessment
- GHG assessment
- Ecological footprint



The advantage of the software

5 indicators



- Possibility for companies to integrate "specific" products
- Easy to use according to subscribers' feedback
- Possibility for contractors to check the results

Example of an assesment

Traffic: 30,000,000 Equal Axle Load

Embankment: (E2 ≥ 80 MPa)

Width of the pavement: 2 x 11,25 m

Length of the pavement: 7km

The basic solution:

- **wearing course: 4 cm SMA 11 25/55-65: Polymer Modified Bitumen (6%SBS)**
- **binding course: 8 cm AC 22 binding (mF) 25/55-65: PmB (5%SBS)**
- **base course: 8 cm AC 22 binding (mF) 25/55-65: PmB (5%SBS)**
- **sub-base layer: 20 cm C12/15 concrete: 7% of cement**

The variant solution:

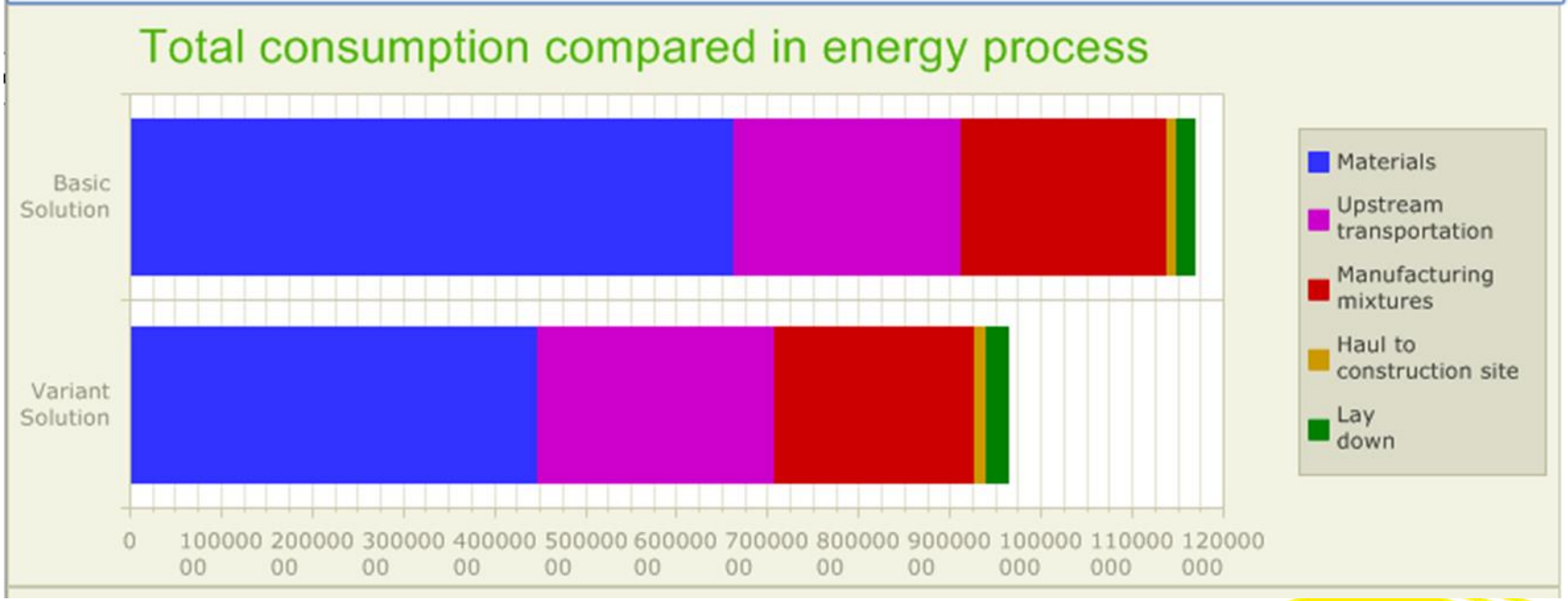
- **wearing course: 4 cm SMA 11 25/55-65: PmB (6%SBS)**
- **binding course: 8 cm AC 22 binding : Pure Bitumen**
- **base course: 8 cm AC 22 binding : Pure Bitumen**
- **sub-base layer: 23 cm Cement stabilized gravel base course: 4% of cement**

Energy assesment

Consumption compared of energy process

(in MJ)

Solution	Materials	Upstream transportation	Manufacturing mixtures	Haul to construction site	Lay down	Total	Comparison / Base
Basic Solution	66 308 019,59	24 967 665,40	22 537 347,37	1 046 817,14	1 895 768,50	116 755 618,00	0.00 %
Variant Solution	44 748 476,89	26 037 893,36	22 004 377,33	1 102 892,84	2 477 836,40	96 371 476,81	-17.46 %

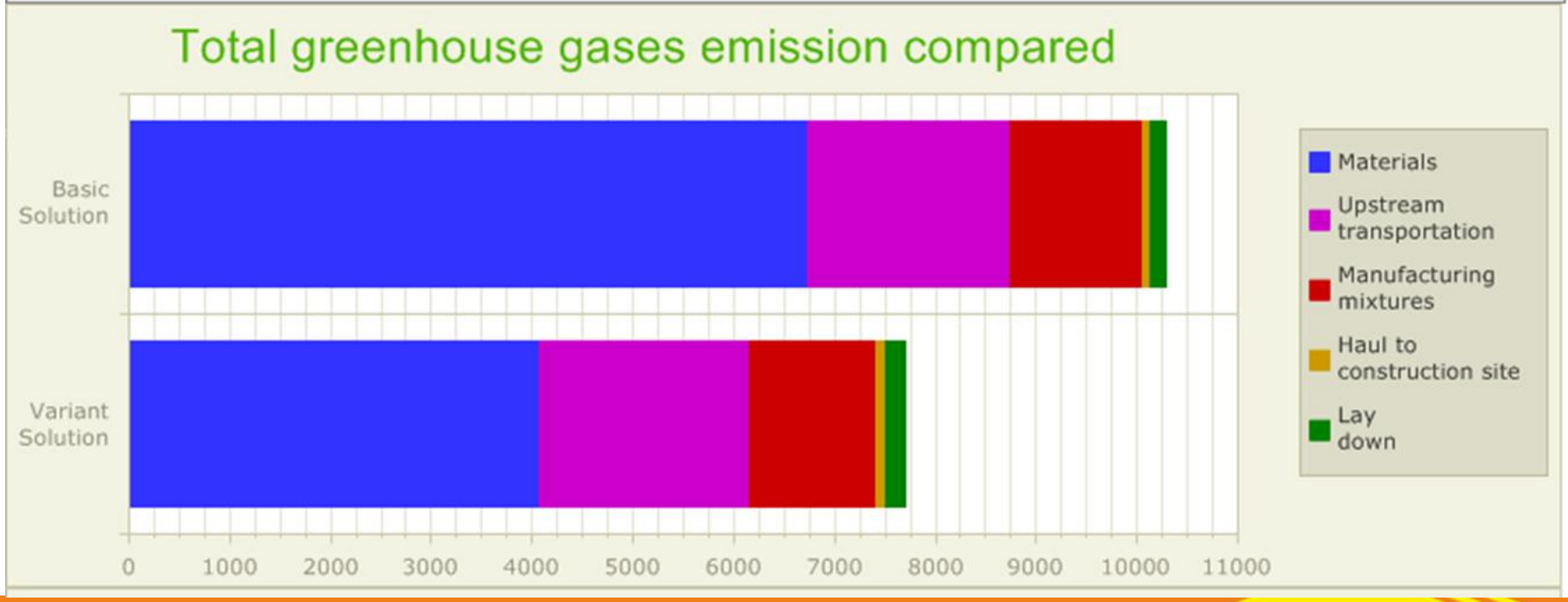


GHG assesment

Emissions of Greenhouse Gases compared

(per ton of CO2 equivalent)

Solution	Materials	Upstream transportation	Manufacturing mixtures	Haul to construction site	Lay down	Total	Comparison / Base
Basic Solution	6 738,98	2 009,57	1 301,49	84,26	143,09	10 277,39	0.00 %
Variant Solution	4 064,58	2 095,71	1 256,64	88,77	187,85	7 693,55	-25.14 %



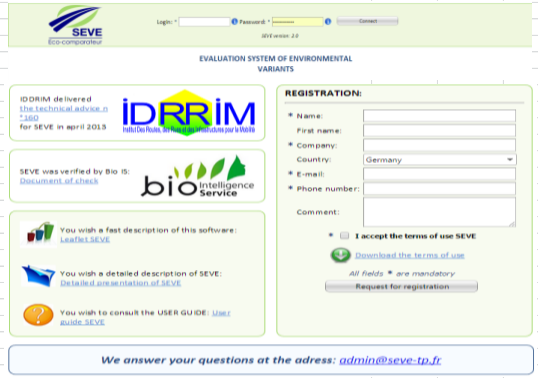
Actions and means involved

- Collect technical and environmental elements throughout the Europe
- Implement key parameters from this collection in the software
- Measured parameters (on plant and work sites) will be compared to estimations calculated in the software
- A website providing information about project progress

Translation of the expressions of SEVE

SEVE V2 International Translation English to Hungarian (p1-2-3)

English Version	Hungarian Version	CORRESPONDING SCREEN PRINT
FIRST PAGE concerning all sessions		
Login	bejelentkezés	
Password	jelszó	
Connect	csatlakoztassa	
SEVE version 2.0	SEVE változat 2.0	
Evaluation System of environmental Variants	Értékelési rendszer környezetvédelmi változatok	
IDDRIM delivered the technical advice n°160	IDDRIM szállított műszaki tanácsadás	
SEVE has been checked by Bio IS (Checking file)	SEVE ellenőrizte a BIOS (ellenőrzése fájl)	
You wish a fast descript of this software	Szeretnél egy gyors leírást a szoftver	
You wish a detailed description of SEVE	Szeretne részletes leírását SEVE	
You wish to consult the USER GUIDE (USER Guide SEVE)	hogy konzultáljon a felhasználói kézikönyv (SEVE használati útmutató)	
REGISTRATION	REGISZTRÁCIÓ	
Name	név	
First Name	keresztnév	
Company	vállalat	
Country	ország	
Email	E-mail	
Phone number	telefonszám	
Comment	megjegyzés	
I accept the terms of use SEVE	Elfogadom a felhasználási feltételeket SEVE	
Download the terms of use	Töltse le a használati feltételeket	
All fields * are mandatory	Minden mező * kitöltése kötelező	
Request for registration	A bejegyzési kérelem	
We answer your questions at the adress: admin@seve-tp.fr	Mi válaszolni a kérdéseire címen: admin@seve-tp.fr	
POSSIBLE SECOND PAGE concerning AI/ABE/CI/BE		
Welcome on the portal of	Üdvözöljük a portálon a	
Authentification	hitelesítés	
Perimeter	kerület	
Connect	összehoz	



Collecting Hungarian elements

Energy consumption of asphalt mixplant:

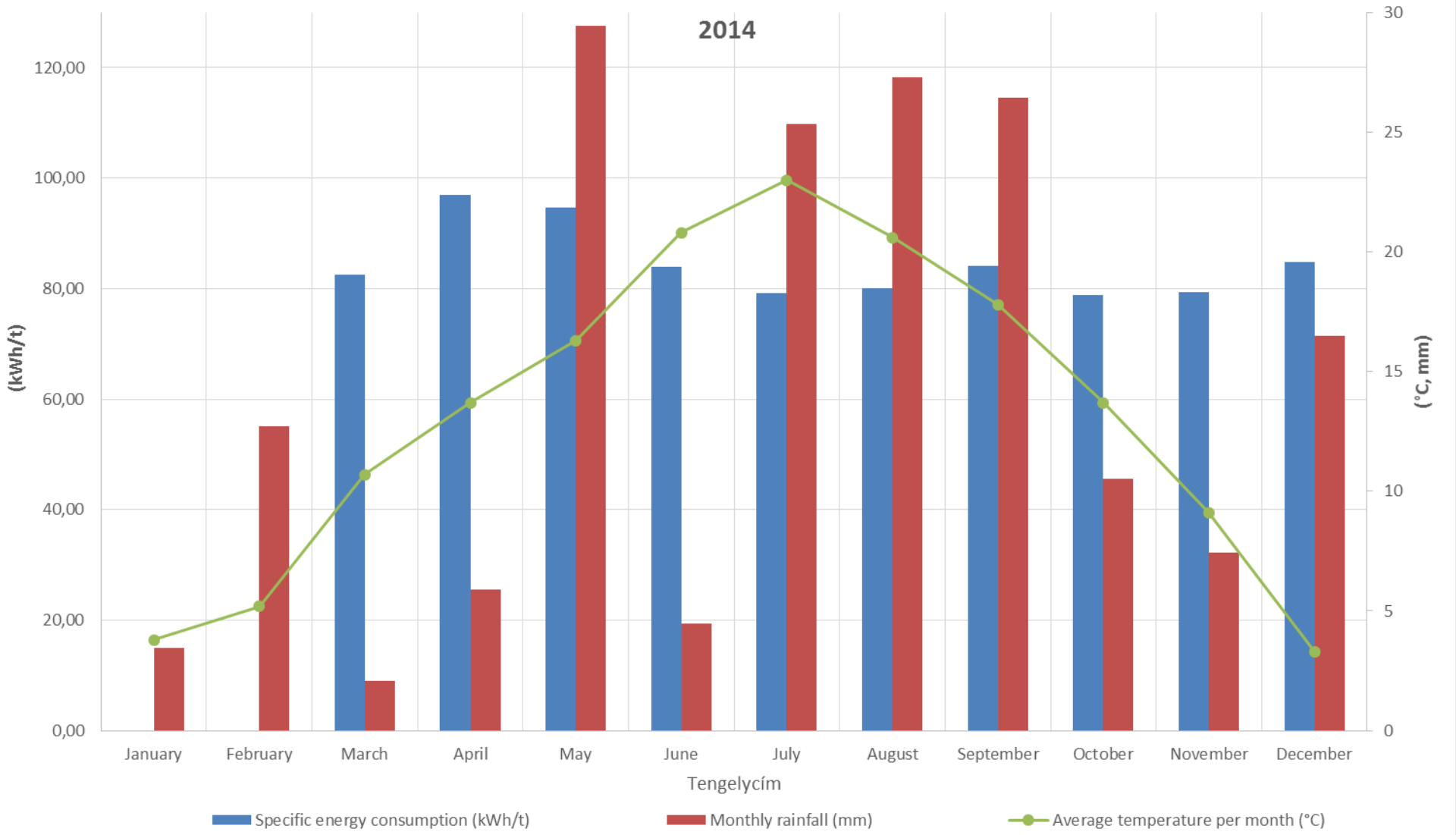
Energy consumption of equipments:

Analysis of energy consumption of an asphalt mixplant

2014

Month	Asphalt production (tons)	RAP* consumption (tons)	RAP* consumption (%)	Energy consumption (kWh)	Specific energy consumption	
					(kWh/t)	(MJ/t)
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	1 017	-	-	22 217.52	82.54	297.14
April	5 057	16	0.32	490 573.46	97.01	349,24
May	5 439	-	-	514 847.40	94.67	340,81
June	7 033	510	7.26	590 511.76	83.96	302,26
July	11 748	704	5.99	930 257.50	79.18	285,05
August	18 932	1 642	8.67	1 514 803.74	80.01	288,04
September	15 175	1 535	10.11	1 276 218.62	84.07	302,65
October	33 683	4 006	11.89	2 652 639.10	78.75	283,50
November	27 072	3 053	11.28	2 146 729.06	79.30	285,48
December	15 309	2 011	13.14	1 278 806.41	84.79	305,24
Total	**145 465**	**13 477**	**9.59**	**11 417 604.57**	**81.86**	**294,70**

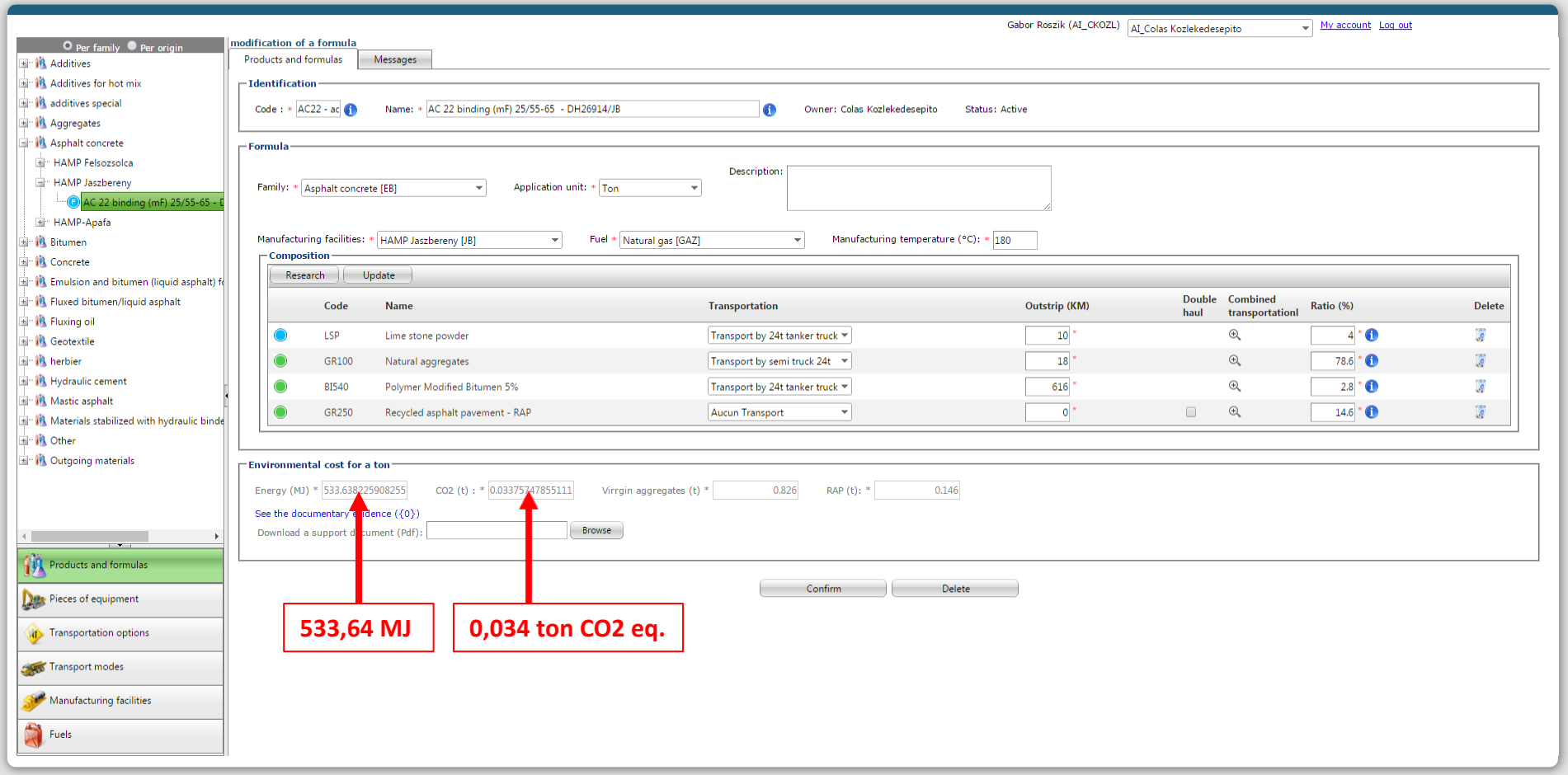
Impact of temperature and rainfall on energy consumption



Elements of the energy consumption of the manufacturing

Elements	Type of energy	(% per asphalt ton)	(tons CO2 eq. per asphalt ton)
Bitumen heating, holding	**power**	4	*0.0012*
Aggregate drying, heating	**Natural gas**	93	*0.0087*
Mixer operation	**power**	3	*0.0011*
Total	-	100	*0,011*

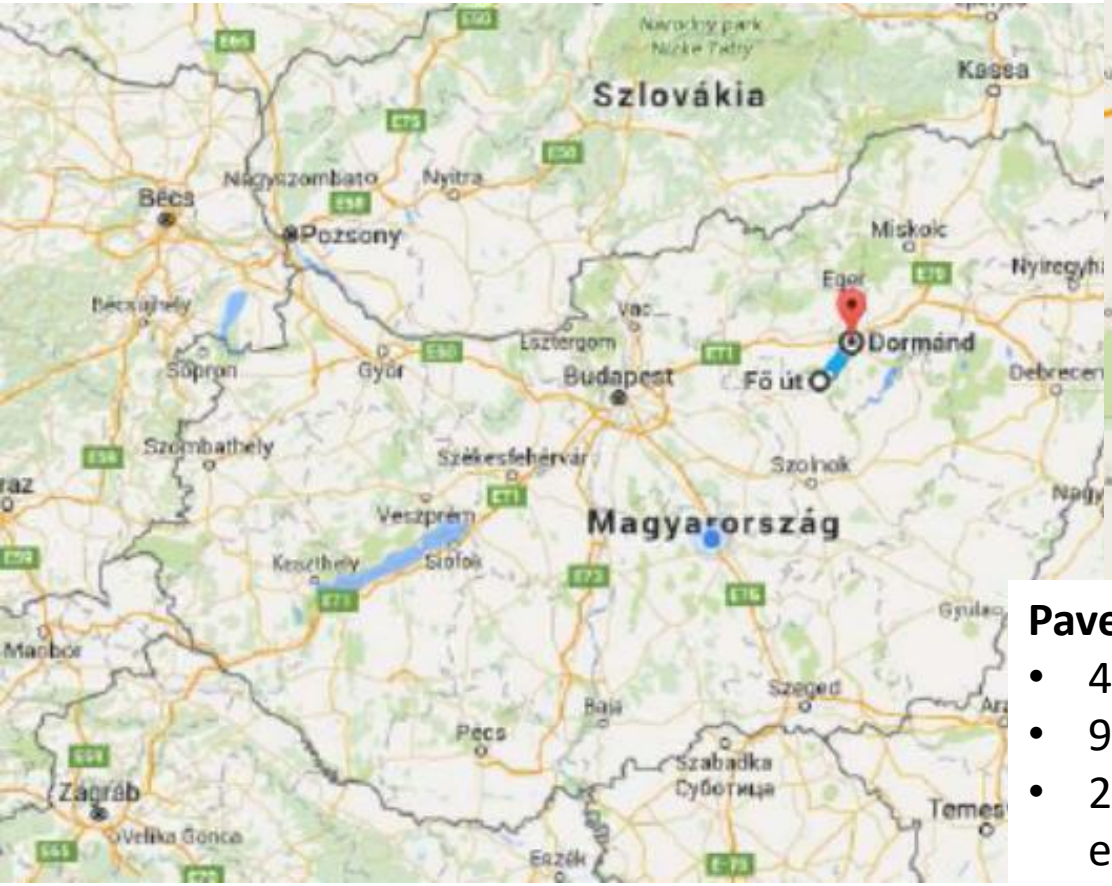
Total energy consumption and CO2 emission of an asphalt mixture per ton

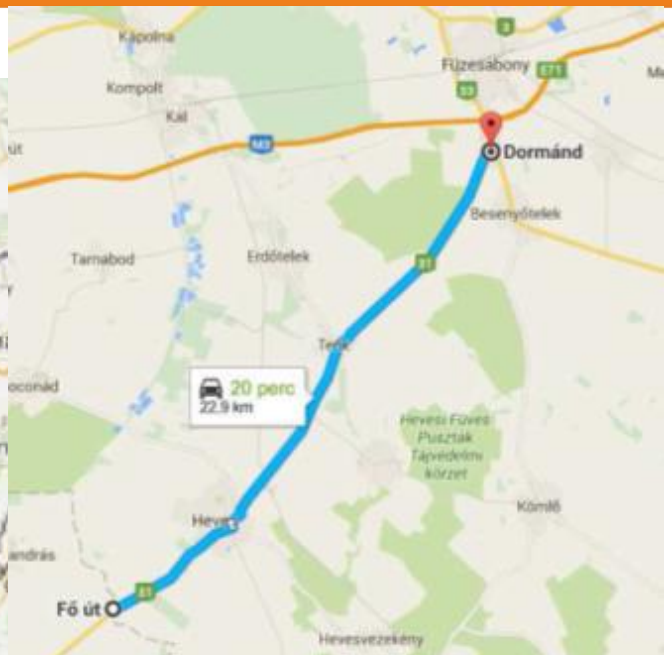


On-field validation on road Nr. 31. (1/3)

COLAS

On-field validation on road Nr. 31. (2/3)





Pavement structure:

- 4 cm AC 11 (mF)wearing course
- 9 cm AC 22 (mF) binding course
- 20 cm cold recycling on the exhausted pavement.

On-field validation on road Nr. 31. (3/3)

DAY	TERM
DATE	2015.07.01-07.31
Kind of milling machine (brand...)	WIRTGEN WR 210
Milling machine consumption (l de FOD)	2850
Milling machine duration use (h)	38
Garage distance (km)	0
Kind of transport for the delivery of the milling machine	-
Kind of truck used to keep asphalt concrete (semi-truck 24t, 30t...)	-
Truck consumption (l)	-
Distance from garage to site for the truck (km)	-
Distance from site to the storage plateform	-
Kind of materials removed	exhausted paveme
Surface removed (m^2)	15746
Quantity removed (m^3)	3093
Distance from quarry (km)	65
replacement aggregates t/m2	0,115
Kind of truck to deliver the replacement aggregates (semi-truck 24t, 30t...)	40 t
Truck consumption (l)	2223

Elements of the energy consumption of the remixing on the exhausted pavement

Technology steps	(MJ/m^2)	(tons CO2 eq./m^2)
transportation of additive from pit in a distance of 65 km and laying it on the surface for remixing	0,6	*0.0185*
remixing existing pavement by remixer	9,5	*0.2926*
surface compaction	2,2	*0.0670*
Total	12,3	*0.3781*

Dissemination

http://sustainableroads.eu/interview-by-the-hungarian-development-center/

sustain. euro> _road

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INTERVIEW BY THE HUNGARIAN DEVELOPMENT CENTER

17 DEC INTERVIEW BY THE HUNGARIAN DEVELOPMENT CENTER

Posted at 17:51h in Uncategorized by sroads • 0 Likes

Representatives from Colas have been interviewed by the Hungarian Development Center Ltd. which is a background organization of the Hungarian Government.

This organization is responsible for disseminating successful practices and projects related to sustainability to stakeholders and citizens. A main objective pursued by the Hungarian Administration is to inspire other companies for future application of innovative and environmental friendly solutions.

During the interview, Gábor Roszik and Zoltan Puchard detailed the development of the SustainEuroRoads and specifically the field validation in the Hungarian road Number 31 in the country of Heves, located in the north-east of the country.

For further information, please contact ROSZIK, Gábor Roszik: gabor.roszik@colas.hu

To listen the interview, please click the following link: http://nyeromagyarok.eu/colas-hungaria-zrt.html

contact details

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Phone
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Hours
Open today · 9:00 am – 6:00 pm

LIFE Programme

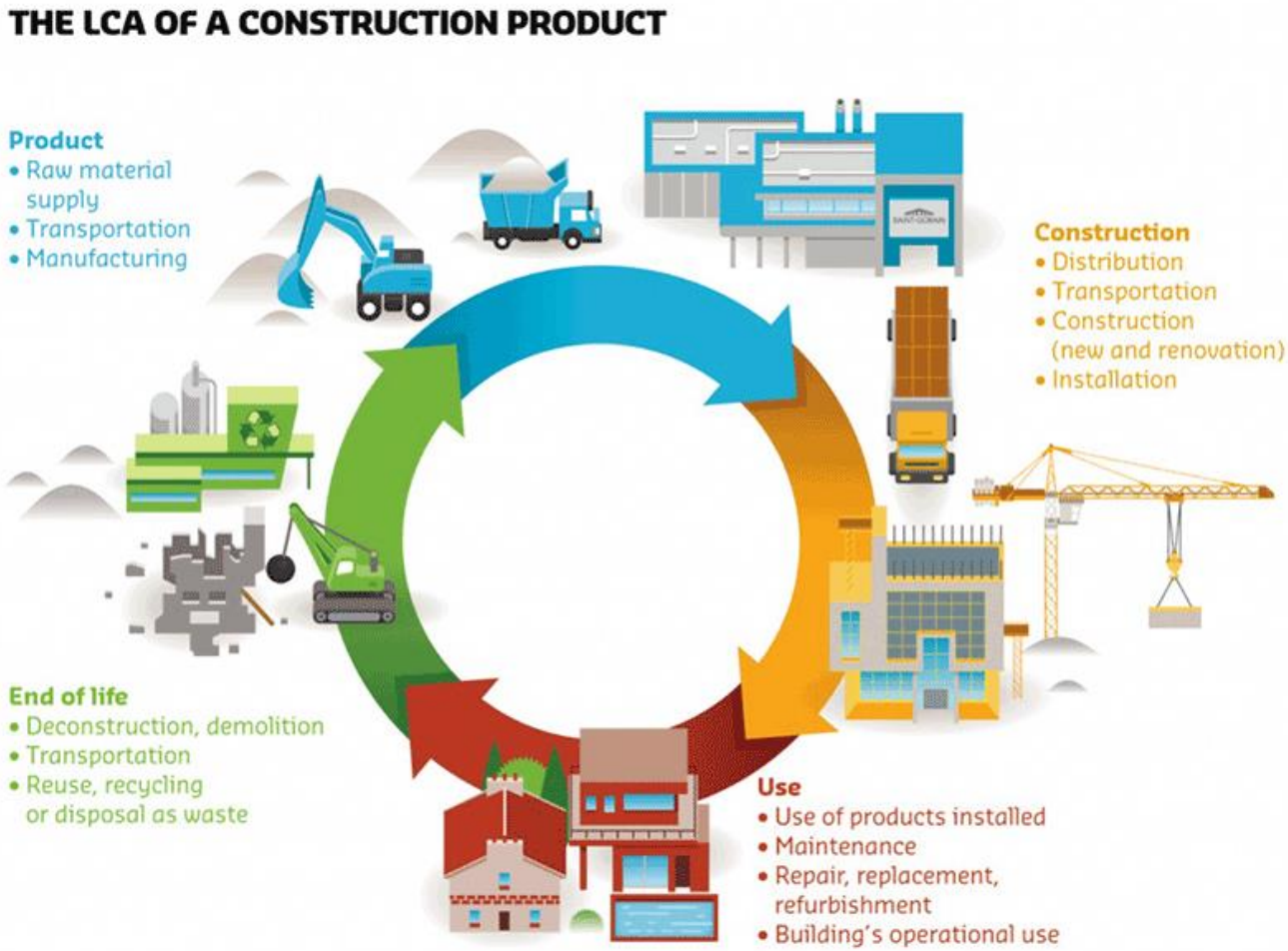
LIFE is the EU's financial instrument supp
environmental, nature conservation and c
projects throughout the EU. The SustainE
shares these values and it is firmly commi
environmental impact of the road infrastru
maximising mobility for citizens in Europe

Since 1992, LIFE has co-financed some 4
contributing approximately €3.4 billion eur
of the environment and climate.

http://nyeromagyarok.eu/colas-hungaria-zrt.html

COLAS

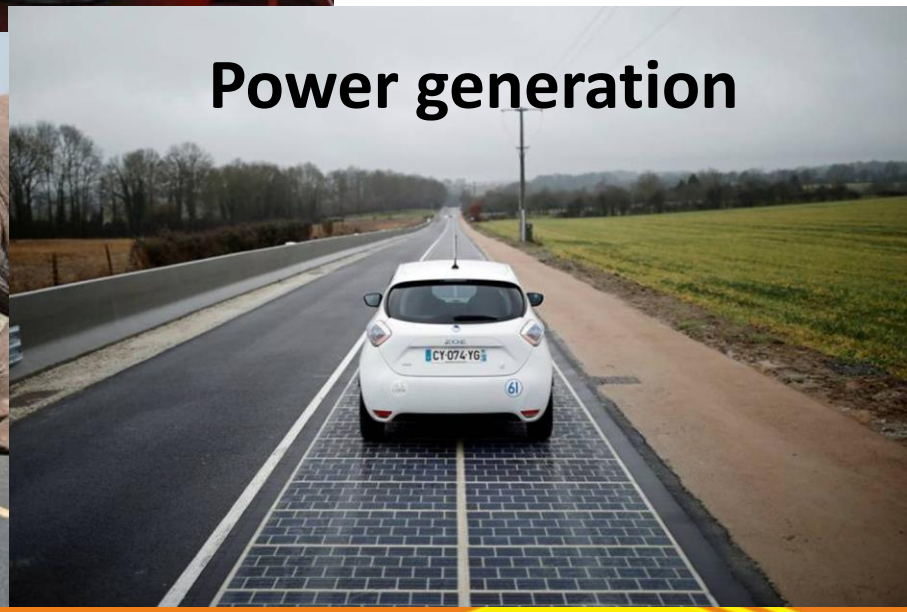
Proposal


THE LCA OF A CONSTRUCTION PRODUCT
Product
• Raw material supply
• Transportation
• Manufacturing
Construction
• Distribution
• Transportation
• Construction (new and renovation)
• Installation
End of life
• Deconstruction, demolition
• Transportation
• Reuse, recycling or disposal as waste
Use
• Use of products installed
• Maintenance
• Repair, replacement, refurbishment
• Building's operational use

Other viewpoints

Health and safety and environment

Biodiversity



Power generation

COLAS

Conclusion


IF WE WANT TO PREVENT
THE WORST EFFECTS
OF CLIMATE CHANGE
BEFORE IT'S TOO LATE,
THE TIME TO ACT IS NOW.
—PRESIDENT OBAMA
#ActOnClimate
GO.WH.GOV/CLIMATE

Thank you for your attention !!!