POLJOPRIVREDNI FAKULTET UNIVERZITET U NOVOM SADU
PFNS
DEPARTMAN ZA RATARSTVO I POVRTARSTVO

UNIVERSITÀ DEGLI STUDI FIRENZE
DISPAA
DIPARTIMENTO DI SCIENZE DELLE PRODUZIONI AGROALIMENTARI E DELL'AMBIENTE

UNIVERSITÄT FÜR BODENKULTUR WIEN
BOKU
DEPARTMENT FÜR WASSER-ATMOSPHÄRE-UMWELT

EUROPEAN COMMISSION
Horizon 2020
EUROPEAN UNION FUNDING FOR RESEARCH & INNOVATION

Workshop 2018

LOVCEN project and AIM-COST Action

Dušan Petrić[1], Igor Pajović[2], William Wint[3,4] and Alessandra della Torre[5]

[1] Faculty of Agriculture, University of Novi Sad, Serbia
[2] Biotechnical Faculty, University of Montenegro, Montenegro
[3] Environmental Research Group Oxford, United Kingdom
[4] Zoology Department, Oxford University, United Kingdom
[5] Dipartimento di Sanità Pubblica & Malattie Infettive, Università di Roma "La Sapienza", Italy

Simple

Making Soup

Right "recipe" essential

Gives same results every time

Complicated

Sending a Rocket to the Moon

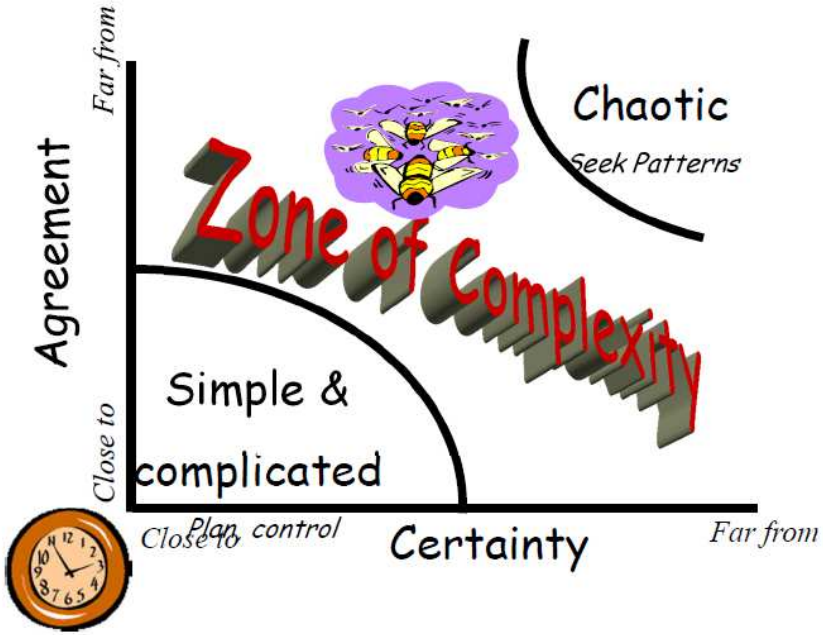
Expe

Complex

Raising a Child

ocols
perience
ıtees

Zimmerman 2014



Serbia for Excell

European Commission

University of Montenegro
Biotechnical faculty

UCG Univerzitet Crne Gore

LOVCEN
Surveillance of invasive and native mosquito vectors and pathogens they transmit in Montenegro

HERIC
HIGHER EDUCATION AND RESEARCH FOR INNOVATION AND COMPETITIVENESS PROJECT

SurveiLance of invasive and native mOsquito VeCtors and pathogENs they transmit in Montenegro - LOVCEN

Workshop, 2018 Novi Sad

Partner institutions:

- Applicant - Biotechnical faculty, University of Montenegro
+
- 3 national scientific research institutions –
Institute for Hydrometeorology and Seismology,
Institute for Public Health,
Natural History Museum.
+
- 6 International scientific research institutions) –
2 from Italy, 1 from Romania and
3 from Serbia

and

- 1 national SME

In total 11 institutions and over 30 researchers without technical staff.

Serbia for Excell

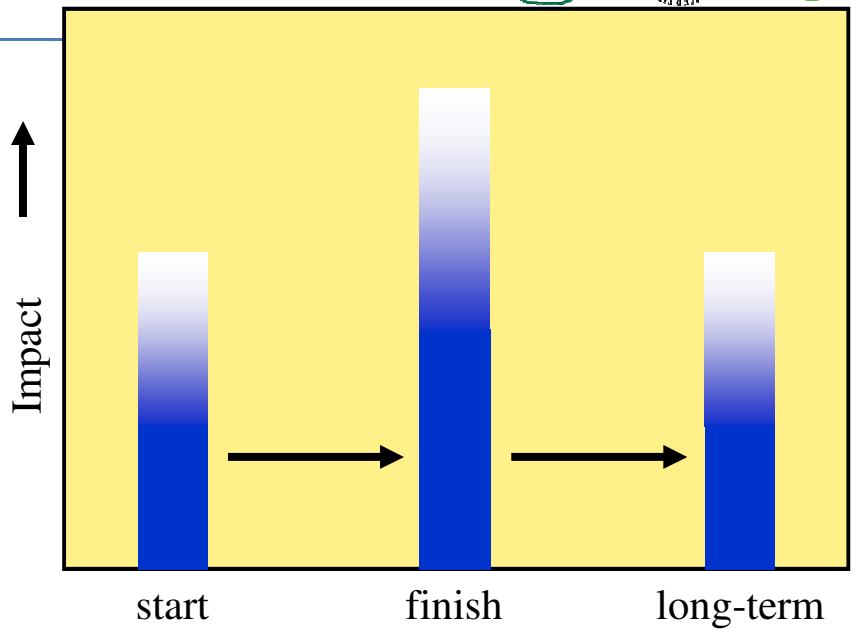
European Commission

We tried to avoid our project looks like this:

To start from somewhere here:

To finish ("successfully") after a few years somewhere here:

Several years later to be back somewhere here:

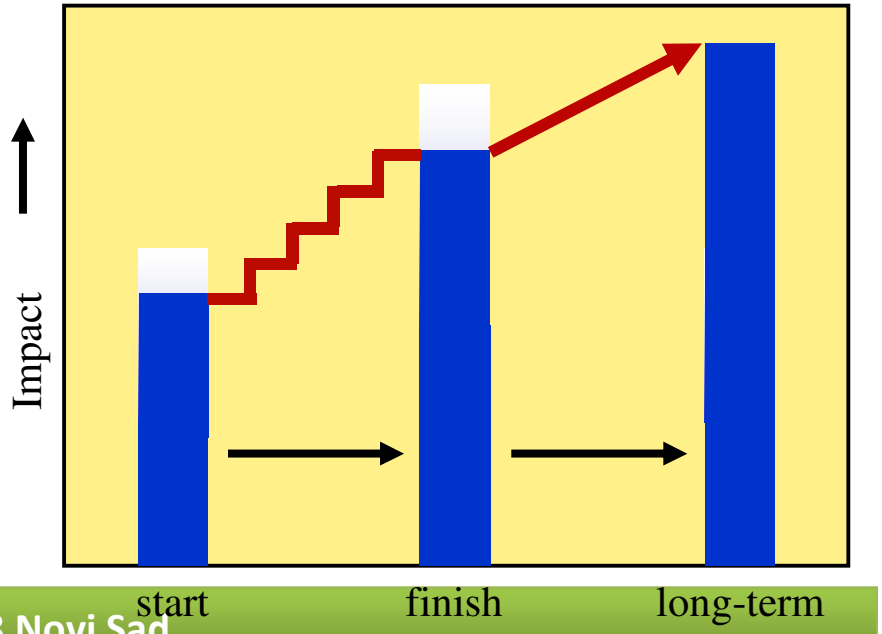


We did our best to have a clearly-defined starting point (SWOT):

Clearly-defined activities and evidence of progress to define the ***Impact*** at the end (WPs):

Ensured long-term ***Impact*** ***after*** the end (sustainibility plan):

And let us see how we did it.



Serbia for Excell

European Commission

LOVCEN WPs - combining capacity building and research from different sectors

(WP1) **Collaborative research on native and invasive mosquito species and pathogens they transmit in Montenegro and development of non-pesticide control measures**

(WP2) **Twinning through exchange of know-how and experience and dissemination activities**

(WP3) **Acquisition of research equipment and innovation capacity building**

(WP4) **Management**

Serbia for Excell

European Commission

(WP1a) - Surveillance of invasive and native mosquito species (and vectors)

Mosquitoes

Eight vector species:

1. *Anopheles maculipennis* (malaria)
2. *An. plumbeus* (malaria)
3. *An. saccharovi* (malaria)
4. *Aedes vexans* (Rift Valley Virus and Celovo Virus)
5. *Aedes caspius* (Rift Valley Virus, *Dirofilaria immitis* and *D. repens*)
6. *Aedes albopictus* (Chikungunya Virus, Dengue Virus, *Dirofilaria immitis* and *D. repens*)
7. *Culex modestus* (West Nile Virus, *Dirofilaria immitis* and *D. repens*)
8. *Culex pipiens* (West Nile Virus, Sindbis virus, Rift Valley Virus, *Dirofilaria immitis* and *D. repens*)

Sand flies

Historical data – No
2014 - 5
TOTAL - 5 species

Black flies

Historical data – 5 species
2015 - 15
TOTAL - 20 species

Ticks

Historical data – No
2017- - 3 species
TOTAL - 3 species

Serbia for Excell

European Commission

West Nile Fever

Malaria

Chikungunya

Dengue Hemorrhagic Fever

Zika

Laishmaniasis

Pappataci fever

Blue thongue Disease

Lime disease

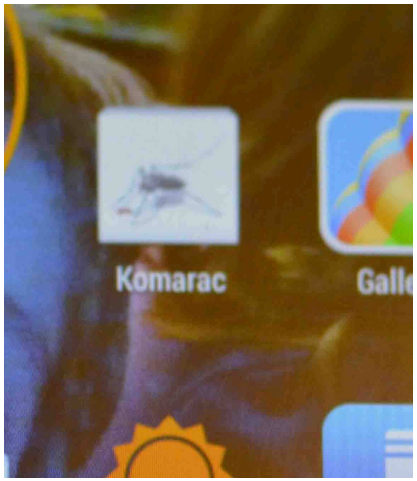
Tick borne encephalitis

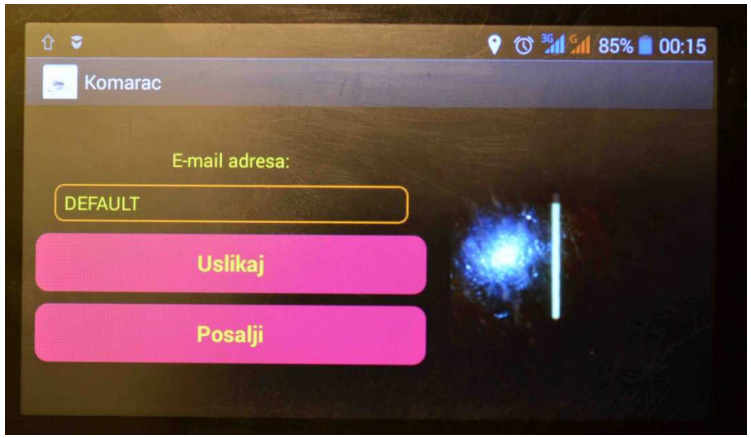
Crimean Congo Hemorrhagic Fever

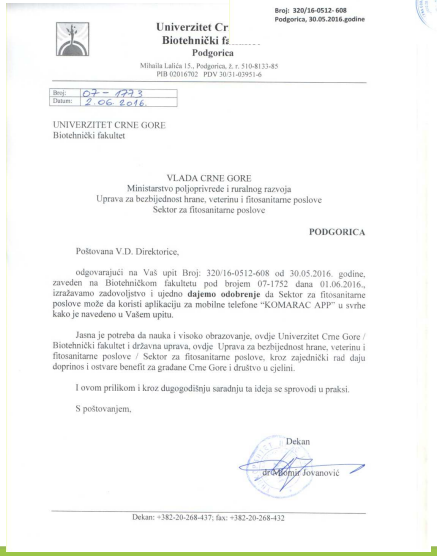
Serbia for Excell

European Commission

(WP1b) - Mobile phone application for surveillance of invasive and indigenous species (KOMARAC)







Serbia for Excell

European Commission

(WP1d) – Social Impact and Policy Recommendation

		reg	Municipality	plan	done	rest	operators	institutions	
1	Andrijevica	N	no	70/70	70	0	-	+	
2	Bar	S	no	70/70	70	0	1/3.	+	
3	Berane	N	yes	70/70	70	0	-	+	+
4	Bijelo Polje	N	yes	70/70	70	0	-	+	
5	Budva	S	yes	70/70	70	0	7./7.	+	
6	Cetinje	C	yes	70/70	70	0	-	+	+
7	Danilovgrad	C	yes	70/70	70	0	-	+	
8	Golubovci	C	yes	70/70	70	0	-		
9	Gusinje	N	no	21/70	21	49	-		
10	Herceg Novi	S	no	70/70	70	0	0/5	+	
11	Kolasin	N	yes	70/70	70	0	-	+	
12	Kotor	S	no	70/70	70	0	0/1	+	+
13	Mojkovac	N	no	70/70	70	0	-	+	
14	Niksic	C	yes	70/70	70	0	0/1		
15	Petnjica	N	yes	70/70	70	0	-		
16	Plav	N	no	10/70.	30	40	-	+	
17	Pluzine	N	yes	70/70	70	0	-		
18	Pljevlja	N	yes	70/70	70	0	-	+	
19	Podgorica	C	yes	70/70	70	0	4/7.	+	+
20	Rozaje	N	yes	70/70	70	0	-		
21	Savnik	N	no	30/30	30	0	-		
22	Tivat	S	yes	70/70	70	0	0/1	+	
23	Tuzi	C	yes	70/70	70	0	-		
24	Ulcinj	S	no	70/70	70	0	0/4	+	
25	Zabljak	N	yes	21/70	43	27	0/1		
			15-25	1710	1594	116	12/30.	20	

15.05.2017.		done		rest	
	total	number	%	number	%
municipalities	**25**	**16**	64	***9***	*36*
citizens	**1710**	**1594**	93.22	***116***	*6.78*
t. operators	**30**	**12**	40	***18***	*60*
institutions	**30**	20	66.67	***10***	*33.33*

suma	suma
1795	**1642**

91.48% **in total**

1594/1710 citizens; 16/25 municipalities; 12/30 touristic operators and 20/30 health care institutions

Healt care institutions

18 community healt centers
7 hospitals
3 specialized hospitals
2 institutes

Σ 30

(WP1d) – Social Impact and Policy Recommendation

Policy Recommendations – LOVCEN

Issue

Hazard high risk for public health from mosquitoes' born diseases (MBD) with further negative economic outcomes for the country's economy (productivity, healthcare and tourism)

Policy Recommendation

Develop and Enforce the Specific Regulative Framework for the Integrated Mosquito and MBD Surveillance and Control System (IMSCS)

Good Practice in Project Based Research Implementation – LOVCEN

Good Practice in Mosquito Surveillance and Control – LOVCEN

Serbia for Excell

European Commission

(WP1e) - SIT and other non-chemical control methods - B

Sterile male mosquitoes import / mark / release / recapture

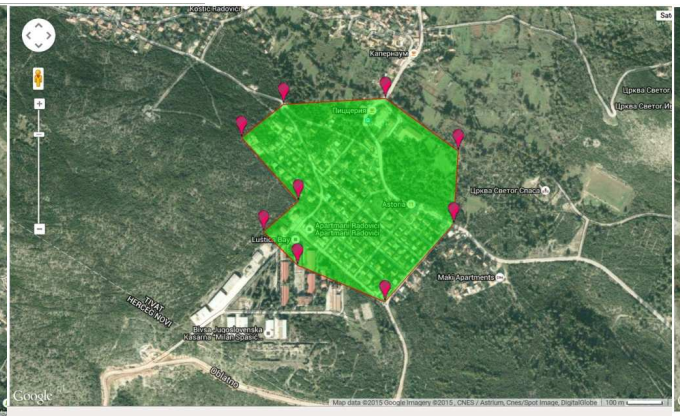
Serbia for Excell

European Commission

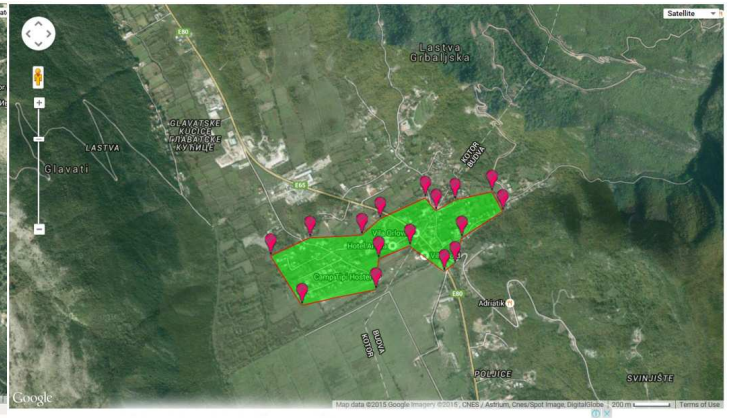
(WP1e) - SIT and other non-chemical control methods - C

Assessment of the risk for Chikungunya, Dengue and Zika Outbreak in Montenegro

Tivat - 73.57 ha



Radovici - 20.73 ha

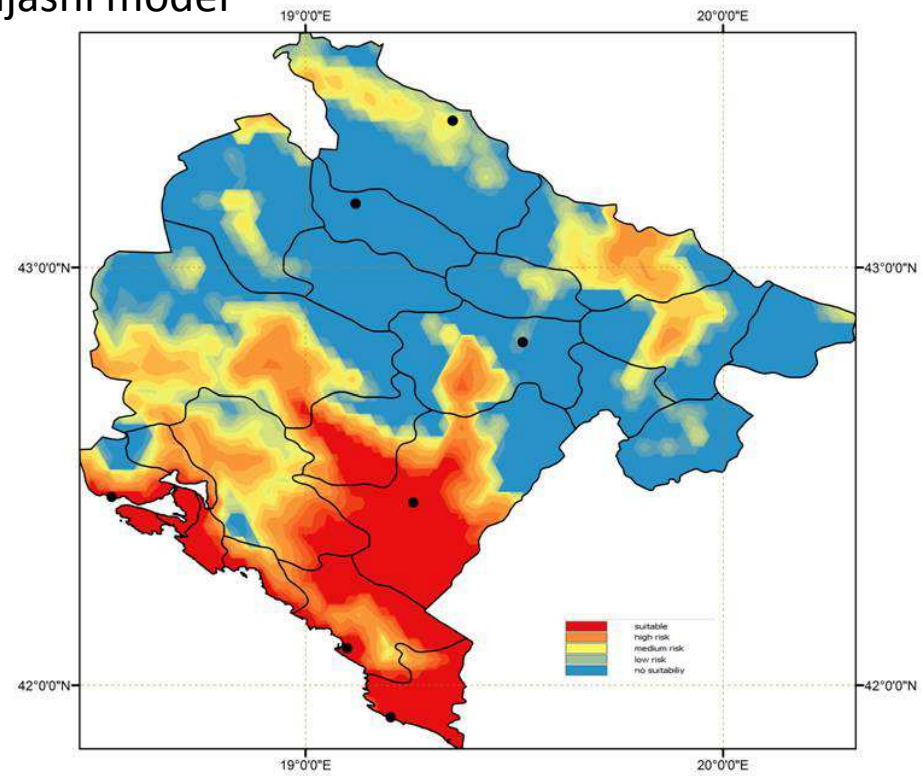


Lastva Grbaljska - 30.21 ha

The *Ae. albopictus* population density may support outbreak of Chikungunya A226V, Chikungunya, Dengue and Zika viruses in case of introduction.

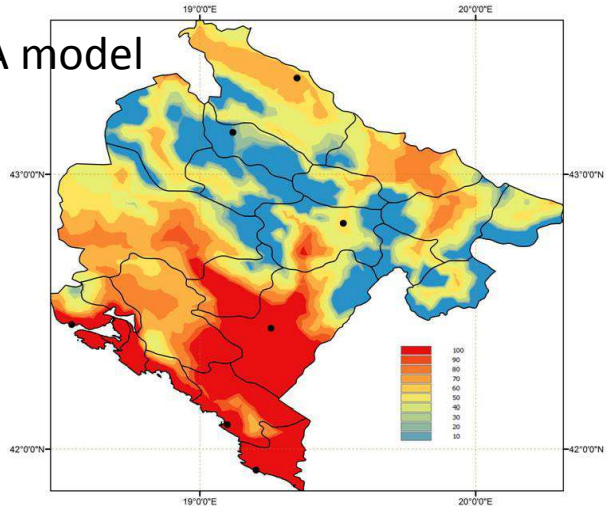
(WP1f) Climate change impact on MV and MBD, adaptation and mitigation

Kobajashi model

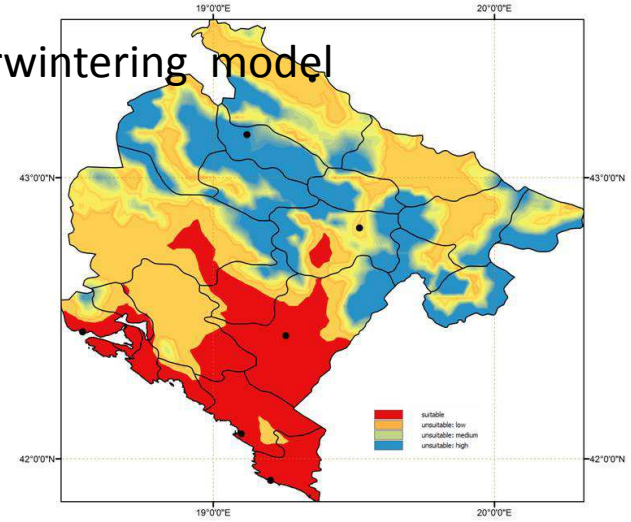


Climatic conditions
vs
establishment of *Aedes albopictus*
for Montenegro period 1981-2010

MCDA model



Overwintering model



Serbia for Excell

European Commission

Workshop, 2018 Novi Sad

Serbia for Excell

European Commission

Collaborative research, sharing know-how and experience

Workshop, 2018 Novi Sad

Coordinator of the LOVCEN project, Dr Igor Pajović received the prize

“The most successful scientist in Montenegro”

December 2017

Outstanding achievements in the inovative research on ecology and control of arthropod vectors.

Serbia for Excell

European Commission

Follow up

Joint FAO/IAEA Programme
Nuclear Techniques in Food and Agriculture

Regional Project Europe RER5022:
Establishing Genetic Control Programmes for Aedes Invasive Mosquitoes

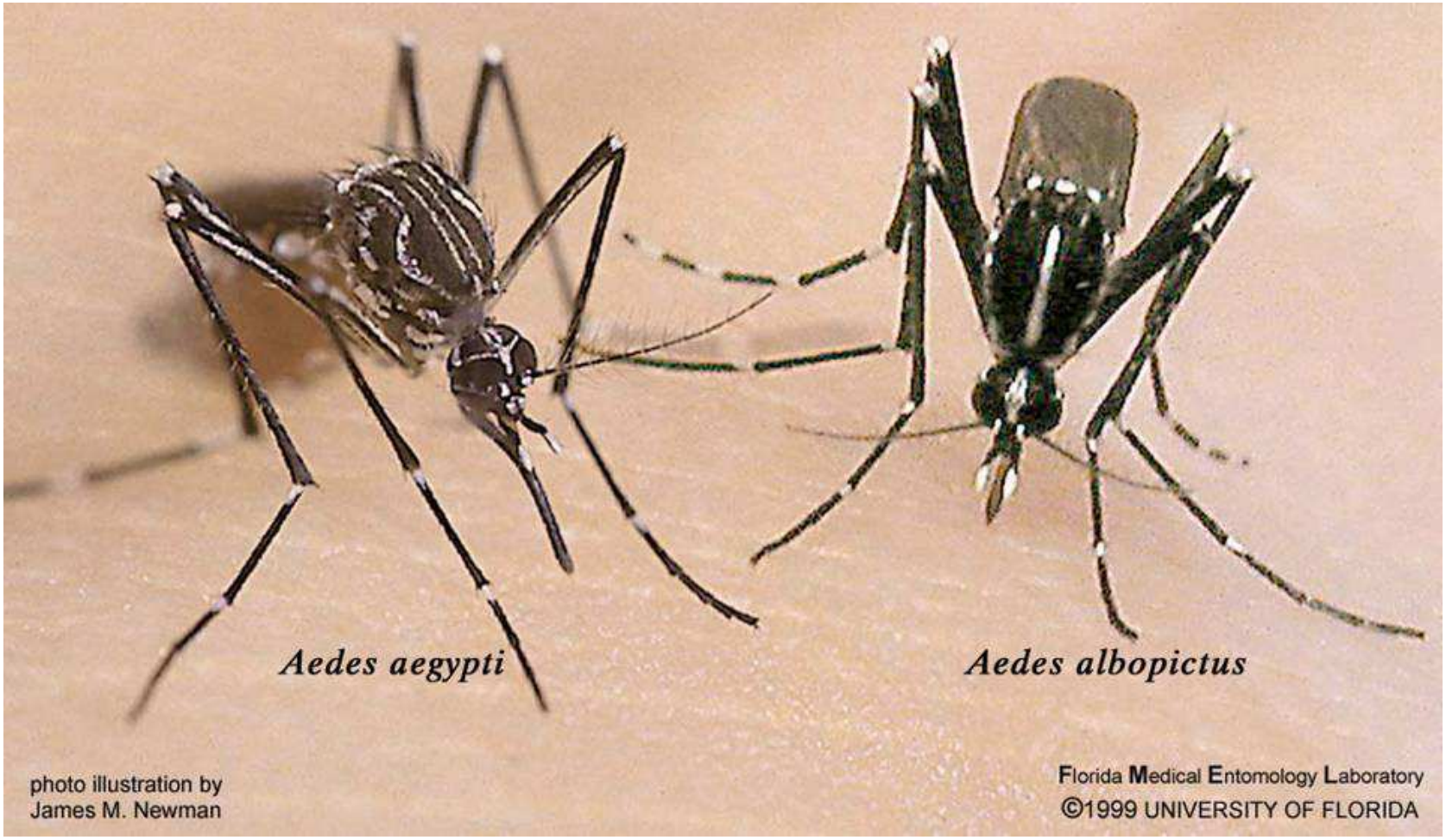
Ministry of Science

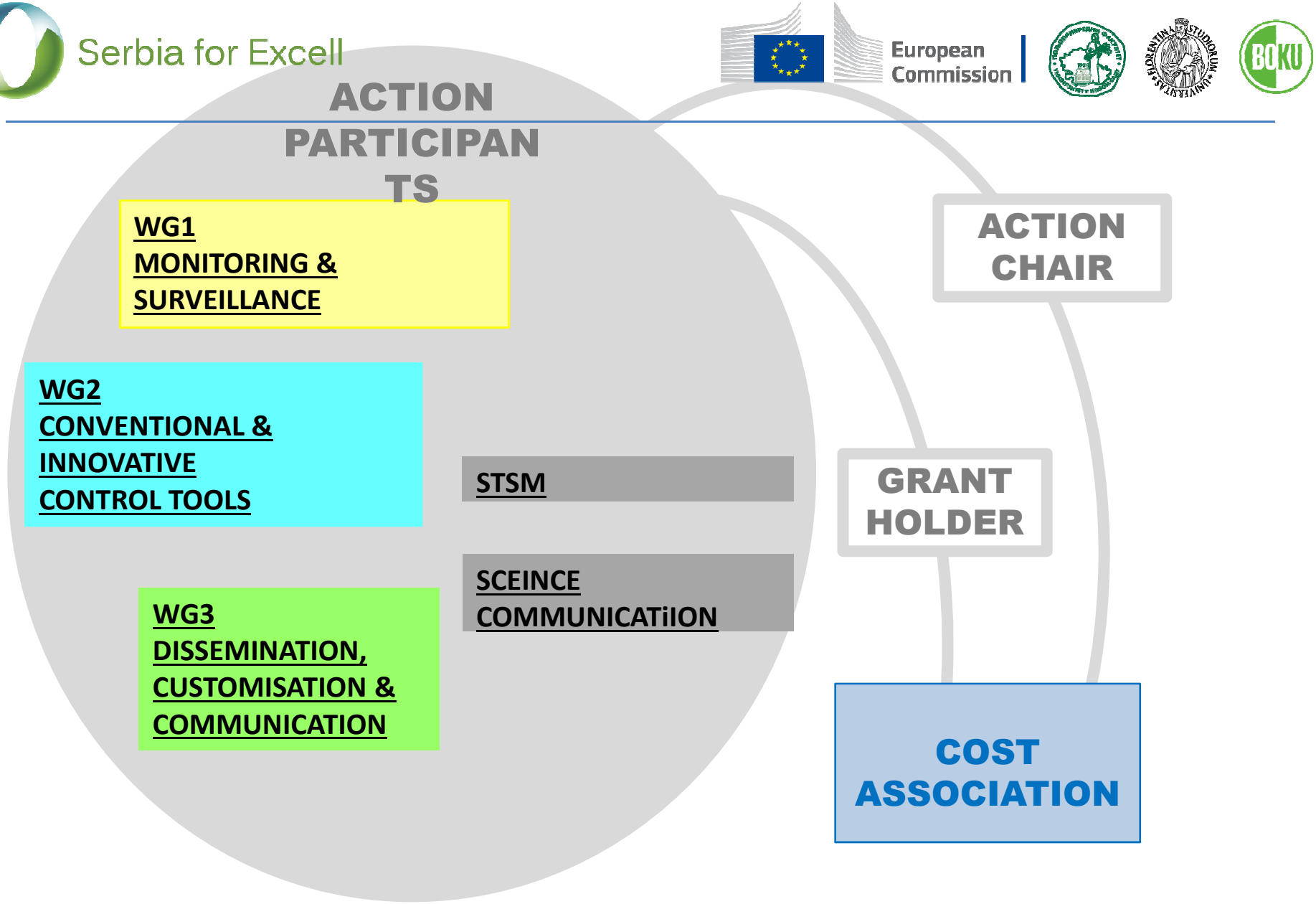
Workshop, 2018 Novi Sad

Serbia for Excell

European Commission

CA COST Action CA17108 - Aedes Invasive Mosquitoes




ACTION PARTICIPANTS
WG1 MONITORING & SURVEILLANCE
WG2 CONVENTIONAL & INNOVATIVE CONTROL TOOLS
WG3 DISSEMINATION, CUSTOMISATION & COMMUNICATION
STSM
SCEINCE COMMUNICATiION
ACTION CHAIR
GRANT HOLDER
COST ASSOCIATION

WG1: MONITORING & SURVEILLANCE

Coordinator: **Deputy-Coordinator:**

TASK 1.1: Review, optimisation & ToK of AIM monitoring and surveillance.
Coordinator: **Deputy-Coordinator:**

TASK 1.2: Citizen science contribution to monitoring and surveillance.
Coordinator: **Deputy-Coordinator:**

TASK 1.3: Integrating surveillance data analysis, spatial modelling & mapping
Coordinator: **Deputy-Coordinator:**

TASK 1.4: Harmonization and customization
Coordinator: **Deputy-Coordinator:**

Serbia for Excell

European Commission

WG2: CONVENTIONAL & INNOVATIVE CONTROL TOOLS

Coordinator: **Deputy-Coordinator:**

TASK 2.1: Review, optimisation of current control options

Coordinator: **Deputy-Coordinator:**

TASK 2.2: Quality evaluation of AIM control operations

Coordinator: **Deputy-Coordinator:**

TASK 2.3 - Innovative vector control tools/New Paradigms

Coordinator: **Deputy-Coordinator:**

Serbia for Excell

European Commission

WG3: DISSEMINATION, CUSTOMISATION & COMMUNICATION

Coordinator: **Deputy-Coordinator:**

TASK 3.1 - Dissemination within the COST-Action network & to scientific external audience

Coordinator: **Deputy-Coordinator:**

TASK 3.2a – Customisation and dissemination of guidelines for surveillance/control

Coordinator: **Deputy-Coordinator:**

TASK 3.2b – Customisation and dissemination of modelling outputs

Coordinator: **Deputy-Coordinator:**

Thank you for your questions!