

CROATIAN AGENCY FOR THE ENVIRONMENT AND NATURE

**Regional Training Seminar on National Systems for
Greenhouse Gas (GHG) inventories
(and projections)
Zagreb, Croatia
14 – 16 October 2015**

**National Systems for GHG estimation
in Croatia
Data collection and QA/QC**

Tatjana Obučina, Msc. Min. Eng., Univ.spec. oeecoing.
Expert Asistente in Climate change Unit
Croatian Agency for the Environment and Nature

CROATIAN AGENCY FOR THE ENVIRONMENT AND NATURE

According to Art. 7. Regulation on the Monitoring of Greenhouse Gas Emissions, Policies and Mitigation measures in the Republic of Croatia (Official Gazette, No. 87/2012)

Croatian Agency for the Environment and Nature (CAEN)
is responsible for:

- Organization of the GHG Inventory preparation
- Collection of activity data
- Development of QA/QC Plan
- Implementation activities QA/QC
- Archiving of all documents which used for Inventory planning
- Selection of Authorized Institution

According to the Air Protection Act, CAEN is responsible to the Reporting to the European Commission under MMR

How we start?

We start with QA/QC Plan

- This is main document
- Is made for each Inventory year, (eg. QA/QC Plan NIR 2016)
- It contense activities, responsibilities, time frame

TIME FRAME DELIVERIES NIR 2016

TIME FRAME FOR DELIVERIES According to MMR 525/13		2015	2016											
Activities	Responsibility	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
MMR NIR 2016, Art. 7.1. MMR 525/13 Deliveries to CAEN	Authorised Institution	29												
MMR NIR 2016, Art. 7.1. MMR 525/13 QC	CAEN													
MMR NIR 2016 Art. 7.1. MMR 525/13 Deliveries to MENP	CAEN	31												
MMR NIR 2016 Art. 7.1. MMR 525/13 QA (Approval)	MENP Committee for ISC													
MMR NIR 2016 Art. 7.1. MMR 525/13 Deliveries to EC	CAEN	15												
NIR 2016, Art. 7.3 MMR 525/13 Deliveries to CAEN	Authorised Institution		31											
NIR 2016 Art. 7.3 MMR 525/13 QC	CAEN			15										
NIR 2016, Art. 7.3 MMR 525/13 Deliveries to MENP	CAEN				14									
NIR 2016 Art. 7.3 MMR 525/13 QA (Approval)	MENP Committee for ISC													
NIR 2016, Art. 7.3 MMR 525/13 Deliveries to EC	CAEN				15									
NIR 2016 Art. 7.4 MMR 525/13 Deliveries to CAEN and MENP	Authorised Institution					1								
NIR 2016 Art. 7.4 MMR 525/13 QC, QA	CAEN, MENP Committee for ISC					14								
NIR 2016 Art. 7.4 MMR 525/13 Deliveries to UNFCCC	MENP					15								
NIR 2016, Art. 8 MMR 525/13 Deliveries to CAEN	Authorised Institution								7					
NIR 2016, Art. 8 MMR 525/13 QC	CAEN								14					
NIR 2016, Art. 8 MMR 525/13 Deliveries to MENP	CAEN								15					
NIR 2016, Art. 8 MMR 525/13 QA (Approval)	MENP									23				
NIR 2016, Art. 8 MMR 525/13 Deliveries to EC	CAEN								31					
Harmonization and approval of the "Annual data collection Plan" (ADCP) for NIR 2017	Authorised Institution													
Data collection for NIR 2017 According ADCP	CAEN													

Responsibilities

(1/2)

How we are organized?

QA/QC NIR coordinator is nominated by Director and is responsible for:

- Coordination of all QA/QC activities of Inventory within the Agency
 - Coordination of all QA/QC activities of Inventory with QC coordinator of an Authorized Institution
 - Delivery of Inventory (and other documents) in the Ministry and EU
 - Archiving of all documentations on implemented QA/QC activities
 - Participation in the work of the Committee for intersectoral coordination on the national system for monitoring of GHG emission
 - Participation and coordination of all activities within the Agency related to the review by ERT and EC
 - Conduct audits per sector with Sector Experts at the Authorized Institution
 - Initiate and participate in projects for Inventory improvement
-

Responsibilities

(2/2)

Sector Experts are nominated in accordance with the thematic areas (Energy, IP and PU, AFOLU, LULUCF, Waste,)

They are responsible for:

- All activities from own sector (collecting data, QC activities)
- Participation in activities related to the review by ERT and EC
- Participations in audits per sector with QA/QC coordinator at the Authorized Institution
- Participation in the work of the Committee for intersectoral coordination on the national system for monitoring of GHG emission
- Initiation and participate in projects for Inventory improvement from own sector

They are responsible to QA/QC NIR coordinator

Activities

Data Collection

(1/3)

Croatian Agency for the Environment and Nature (CAEN) is responsible for data collection

Main document for data collection is Annual data Collection Plan (ADCP)

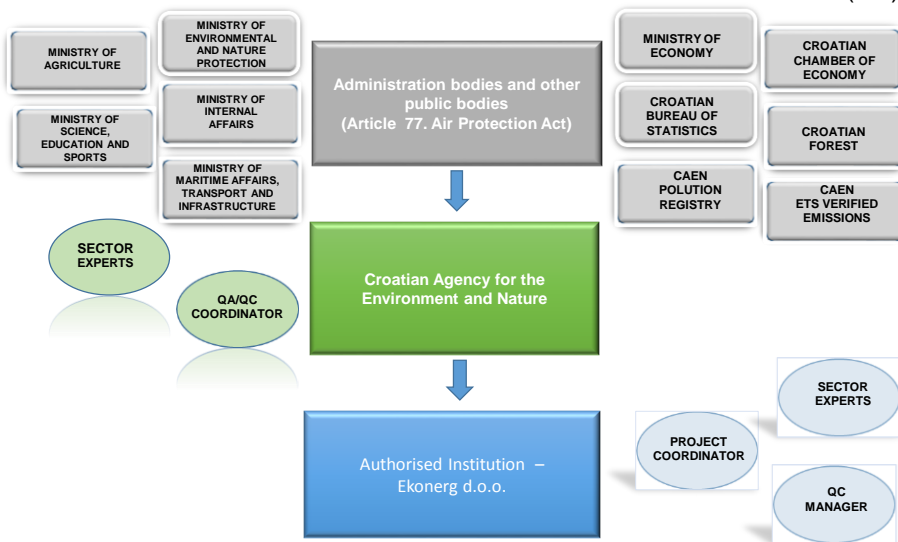
Annual data Collection Plan (ADCP)

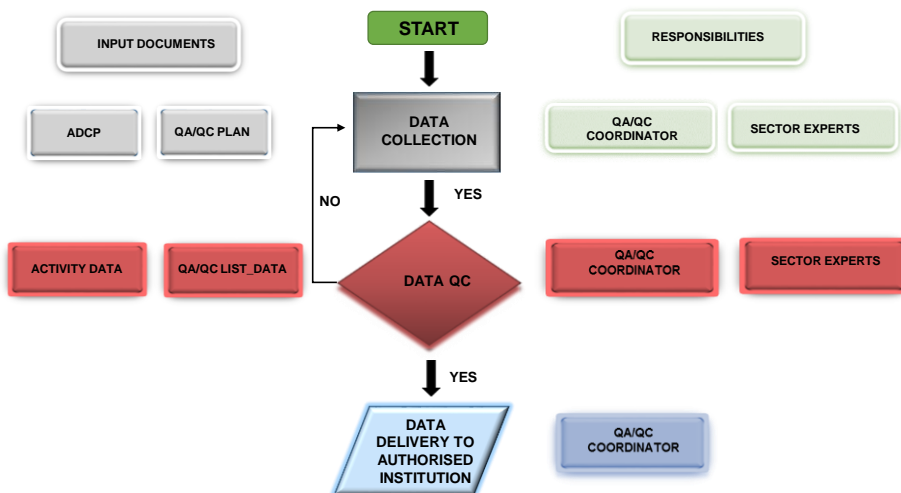
- Is made for each sector
- It contains source categories, activity, activity data, data source and competent authority
- This plan prepared by the Authorized Institution in collaboration with Agency and Ministry
- Published on the official website of the Ministry and Agency

•Art. 77 of the Air Protection Act regulates timeliness and completeness of requirements that the state administration bodies and other public bodies which collect and/or hold data on activities according to sectors, in which greenhouse gas emissions are emitted or removed, and which data are required for producing this report **should deliver** such data to the Agency. The data should be delivered yearly free of charge, taking in consider deadlines prescribed by this Act and the scope and format published by the Ministry on its website (ADCP) .

Data Collection

(2/3)



[illegible]

Working platform

(1/4)

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Dokumentacija - All Documents - Politična stranica - Agencija - Moja mapa Web Sites Gallery Suggested Sites

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PROJEKTI DATOTKE BIBLIOTeka

Odjeljak za klimatske promjene

PROJEKTI • NIR

Documents	Vrsta	Naziv	Imenovanje	Imenovanje
Dokumentacija		1_GA_GC	24.9.2013. 13:55	AZD@gnmail
Ulažni dopisi		2_PROCEDURE_URUTE_OBRASCI	9.12.2014. 9:07	AZD@zobacina
Izlazni dopisi		3_BULJEŠKE_COOLUX_IMENOVANJA	24.9.2013. 13:55	AZD@gnmail
ETS - mp i ver		4_METEOROLOGISKE_PRIKUPILANJA_PODATACA	24.9.2013. 13:56	AZD@gnmail
Interni dopisi		5_PROJEKTI	2.10.2013. 8:52	AZD@gnmail
Links		6_POVERENITVO_BULJEŠKE	6.10.2014. 8:43	AZD@gnmail
Zadaci		7_PROGRAM_PRIKUPILANJA_PODATACA	9.12.2014. 9:16	AZD@zobacina
Discussions		ARICLE 10 Action plan on LUUCF 529_2013	6.2.2015. 9:16	Dino Križnjak
Sites		CMF Report	11.2.2015. 15:56	Bernarda Rodman
People and Groups		Hrvatske šume dopis i ispraznost	21.9.2013. 13:16	Dino Križnjak
Sadržaj web-mjesta		Local review doc	2.6.2015. 15:04	Dino Križnjak
		MMR Report	27.2.2015. 14:42	Bernarda Rodman
		NIR	21.11.2013. 11:46	Milena Grčić
		NIR 2009	21.11.2013. 10:43	Milena Grčić
		NIR 2010	21.11.2013. 10:45	Milena Grčić
		NIR 2011	21.11.2013. 10:43	Milena Grčić
		NIR 2012	21.11.2013. 10:54	Milena Grčić
		NIR 2013	21.11.2013. 10:45	Milena Grčić
		NIR 2014	5.2.2015. 16:08	AZD@gnmail
		NIR 2015	31.10.2013. 10:53	AZD@gnmail
		NIR 2016	14.4.2015. 13:27	AZD@zobacina
		Objednjeni zahtjevi ministarstva poljoprivrede	21.9.2013. 15:17	Dino Križnjak
		Ovlaštenik 2011 - 2013	21.9.2013. 14:25	Bernarda Rodman
		Ovlaštenik 2013 - 2015	11.02.2015. 12:01	Bernarda Rodman
		Ovlaštenik 2015 - 2019	29.7.2014. 10:49	AZD@gnmail
		Uredbe i odluke	6.2.2015. 10:04	Dino Križnjak
		VODICI	6.2.2015. 9:07	Dino Križnjak
		WS_1	2.2.2015. 8:48	Dino Križnjak
		WS_2	25.2.2015. 10:37	Bernarda Rodman
		WS_3	2.2.2015. 8:48	Dino Križnjak

Working platform

(2/4)

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SharePoint

PROJEKTI DATOTKE BIBLIOTeka

Odjeljak za klimatske promjene

NIR • NIR 2015

Documents	Vrsta	Naziv	Imenovanje	Imenovanje
Dokumentacija		00_OPĆENITO	31.10.2013. 10:56	AZD@gnmail
Ulažni dopisi		01_ENERGETIKA	31.10.2013. 10:58	AZD@gnmail
Izlazni dopisi		02_INDUSTRIJSKI PROCESI I UPOTREBA PROIZVODA	30.10.2014. 13:39	AZD@gnmail
ETS - mp i ver		04_POLJOPRIVREDA	31.10.2013. 11:00	AZD@gnmail
Interni dopisi		05_LULUCF	31.10.2013. 11:01	AZD@gnmail
Links		06_OTPAD	31.10.2013. 11:01	AZD@gnmail
Zadaci		07_METEOROLOGISKE_PRIKUPILANJA_PODATACA	31.10.2013. 11:01	AZD@gnmail
Discussions		08_GA_GC	28.5.2014. 10:12	AZD@gnmail
Sites		09_SUBMISSION	31.10.2013. 10:56	AZD@gnmail
People and Groups		10_REVIZIJA	31.10.2013. 10:56	AZD@gnmail
Sadržaj web-mjesta		11_PLAN_PODBUŠANJA	24.8.2015. 14:56	AZD@zobacina
		CMF	30.3.2015. 8:56	Dino Križnjak
		Dostavljeni podatci prema programu prikupljanja NIR_2015	18.2.2015. 13:39	Dino Križnjak
		Uputnici CM_GM_ND	26.3.2015. 14:34	Dino Križnjak

Working platform

(3/4)

SharePoint

PREGLAD DATOTEKE BIBLIOTEKA

Odjeljak za klimatske promjene

NIR 2015 · 01_ENERGETIKA ®

Documents	Vrsta	Naziv	Izmijenjeno	Izmijenjeno
Dokumentacija		DOPISI	31.10.2013. 10:59	<input type="checkbox"/> AZOJgmalic
Ulazni dopisi		Kontakt osobe	23.6.2014. 8:47	<input type="checkbox"/> Dino Križnjak
Izlazni dopisi		PODACI	31.10.2013. 10:58	<input type="checkbox"/> AZOJgmalic
ETS - mp i ver		QC LISTA_ENERGETIKA	27.3.2015. 14:16	<input type="checkbox"/> AZOJobucina
Interni dopisi				

Lists

Zadaci

Discussions

Sites

People and Groups

Sadržaj web-mjesta

Working platform

(4/4)

SharePoint

PREGLAD DATOTEKE BIBLIOTEKA

Odjeljak za klimatske promjene

01_ENERGETIKA · PODACI ®

Documents	Vrsta	Naziv	Izmijenjeno	Izmijenjeno
Dokumentacija		1.A.1 ENERGETSKA POSTROJENJA	31.10.2013. 10:58	<input type="checkbox"/> AZOJgmalic
Ulazni dopisi		1.A.3 PROMET	31.10.2013. 10:58	<input type="checkbox"/> AZOJgmalic
Izlazni dopisi		1.B.1. FUGITIVNE EMISIJU ČVRSTA GORIVA	13.10.2014. 13:54	<input type="checkbox"/> AZOJobucina
ETS - mp i ver		1.B.2. NAFTA I PRIRODNI PLIN	31.10.2013. 10:58	<input type="checkbox"/> AZOJgmalic
Interni dopisi		POD_Energetika bilanca, Ulazni podaci	9.1.2015. 15:44	<input type="checkbox"/> AZOJgmalic

Lists

Zadaci

Discussions

Sites

People and Groups

Sadržaj web-mjesta

Archiving Procedures

(1/2)

INVENTORY DATA RECORD SHEET (IDRS) is document which were used in purpose archiving all Inventory data.

- activity data,
- data source,
- emission factors,
- methodology,
- data archivation
- data gaps,
- suggestion for the future
- responsibility

Archiving Procedures

(2/2)

Croatian IDRS 2014

Zagreb, January 2013

Table A6-1: An example of Inventory Data Record Sheet for 2012 in Waste

INVENTORY DATA RECORD SHEET	
Year: 2012	
MODULAR WASTE	
EU-MODULAR METHANE EMISSIONS FROM SOLID WASTE DISPOSAL SITES	
WORKSHEET 1-1	
SHEET 1 OF 1 CH4 EMISSIONS	
STEP 1 TO 4	
PAGE 1 of 5	
DATA SOURCE:	
A. ACTIVITY DATA:	
Environmental Pollution Register database and Landfill Inventory database (Croatian Environmental Agency: CEA)	
Assessment of inappropriate activity data on quantities of MSW disposed to different types of SWDs - Guidelines Development for starting implementation of Waste Management Plan in the Republic of Croatia (KROING-Gas)	
Quantities of MSW disposed to SWDs:	
Managed MSW:	
Unmanaged - deep: 39,89 Gg	
Unmanaged - shallow: 13,63 Gg	
Country-specific methane correction factor (MCF): 0,892	
Country-specific fraction of degradable organic carbon (DOC): 0,16	
Revised methane: 4,89 Gg	
B. METHODOLOGY/EMISSION FACTOR:	
Publications:	
IPCC/WHO/UNEP/WHO (1997), Greenhouse Gas Inventory Workbook, Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2	
IPCC/WHO/UNEP/WHO (1997), Greenhouse Gas Inventory Workbook, Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 3	
IPCC (2003), Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories	
Methodology: First Order Decay method (Tier 2)	
Methane generation rate constant (k=0.05)	
Fraction of DOC which readily degrades (f=0.55 (0.5-0.6))	
Function of carbon retained as methane (f=0)	
ORIGINAL DATA SOURCE:	
A. ACTIVITY DATA:	
Environmental Pollution Register database and Landfill Inventory database (CEA)	
METHOD:	
See publications in original data source	
ADDITIONAL INFORMATION:	
Evaluation and compiling of data coming from original data source and adjusting to recommended Environmental Panel on Climate Change (IPCC) methodology	

Croatian IDRS 2014

Zagreb, January 2013

MODULAR WASTE	
EU-MODULAR METHANE EMISSIONS FROM SOLID WASTE DISPOSAL SITES	
WORKSHEET 1-1	
SHEET 1 OF 1 CH4 EMISSIONS	
STEP 1 TO 4	
PAGE 2 of 5	
DATA ARCHIVATION:	
Publications:	
Panfilić, D., Mihaljević, M. (2000) Estimation of the Quantities of Municipal Solid Waste in the Republic of Croatia in the period 1990 - 1999 and 1999 - 2010.	
Panfilić, V. (2003), Report: The basis for methane emission estimation in Croatia 1990-1999, B. Data on Municipal Solid Waste in Croatia 1990-1999	
Environmental Pollution Register Database and Landfill Inventory Database: CEA	
DATA GAPS:	
MSW quantity estimation were in most cases gained by test weighing in order to estimate average volumes of waste determined by volume and density of MSW	
National classification of SWDs is different from IPCC classification.	
Source data for DOC estimation.	
SUGGESTION FOR THE FUTURE:	
For the purpose of improved activity data gathering from solid waste disposal activities it is necessary to improve quality of existing data:	
<ul style="list-style-type: none">more accurate determination of waste quantities disposed to different types of SWDs (managed, unmanaged deep and unmanaged shallow) - based on measurement/weighing or more accurate estimationproviding methodology to determine country-specific MSW composition and periodic analysis of waste composition at major landfills. It will be solved through the project of the CEA. Creating a reliable methodology for the analysis of the composition of MSW, determine the average composition of MSW in the Republic of Croatia and the proportion of the amount of MSWmodification of Environmental Pollution Register and Landfill Inventory database regarding to MSW with additional information (provided on regular basis) on technical and environmental protection measures implemented at landfills, waste quantities disposed to different types of SWDs (managed, unmanaged deep and unmanaged shallow) and waste compositioncollecting the necessary data and information on organic industrial waste (including sludge from waste water treatment) disposed in SWDs	
Adjustment of country-specific to IPCC SWDS classification for entire time series, in order to accurately estimate the MCF. Due to lack of adequate information, unrepresentative method has been applied for estimation of waste and landfill characteristics over a long period of time. It is necessary to improve the quality of existing data and to reconstruct historical data.	
More detailed background information related to the sources of AD and EF's are necessary in order to improve transparency. Research should be conducted in order to develop country-specific parameters for the first order decay method to increase the accuracy of the emission estimates.	
More information for uncertainty estimation is required, regarding more accurate and transparent uncertainty analysis.	

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ANNEX 4-1

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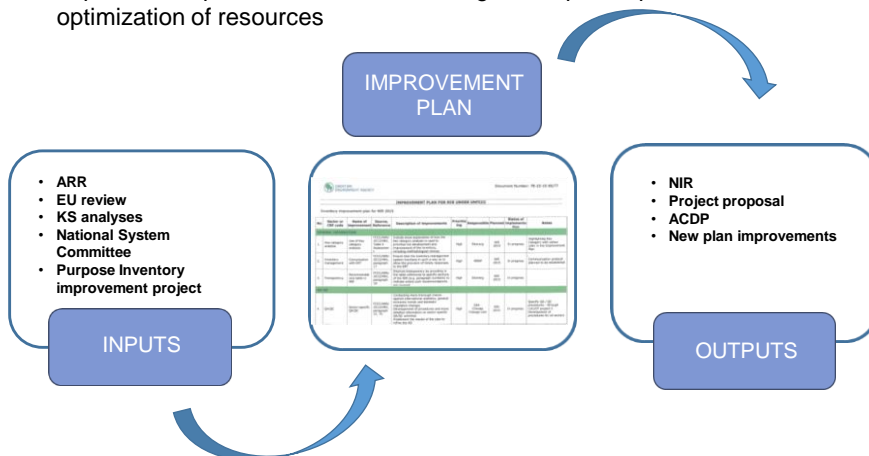
ANNEX 4-2



Inventory Improvement

(1/2)

- Inventory development is never-ending process - improving is imperative
- Improvement plan is a tool for controlling development process and optimization of resources



Inventory Improvement

(2/2)

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Document Number: 78-23-15-66/77

IMPROVEMENT PLAN FOR NIR UNDER UNFCCC

No	Sector or CRF code	Name of improvement	Source, Reference	Description of improvements	Prioritizing	Responsible	Planned	Status of implementation	Notes
5.	QA/QC	Enteric fermentation	FAIR/ARR/2013/HRV, paragraph 51, 52	(1) Improve the sector-specific routine QC procedures, especially at the stage of data transfer from the calculation sheet to the CRF tables (2) Updates a list of sector-specific improvements and implement the improvement on schedule	High	Ekoner	NIR 2015	In progress	
6.	QA/QC	Solid waste disposal	FAIR/ARR/2013/HRV, Paragraph 75	Strengthen QA/QC procedures to avoid errors and provide more detailed information on sector-specific QA/QC activities	High	CEA - Waste Department	NIR 2015	In progress	Development of procedures for waste sector and including in QA/QC Plan NIR2015
ENERGY SECTOR									
7.	International bunker fuels CRF 1.C.	International aviation IEA - CRF data	FAIR/ARR/2013/HRV, paragraph 26	Investigate the discrepancies between CRF table 1.C and IEA data (related to the fact that a larger part of jet kerosene consumption is reported as international aviation in the CRF table)	High	Ekoner	NIR 2015	In progress	Project for estimation emissions from Transport will receive the data, followed by analysis NIR2014 chapter 3.2.2./partial
8.	Stationary combustion solid, liquid and gaseous fuels - CO2 CRF 1.A.1, CRF 1.A.2.	Country-specific factors	FAIR/ARR/2013/HRV, paragraph 29	(1) Apply country-specific factors to estimate emissions for the main fuel types (2) If country-specific factors are not available, include the implementation timeline for the plan to apply country specific factors to estimate emissions for the main fuel types	High	CEA - Climate Change Unit	NIR 2017	Not started	Requirements for new Project in frame/schedules after NIR 2015
9.	CRF 1.B.2.c.	Oil and natural gas, venting and flaring	FAIR/ARR/2013/HRV, paragraph 32, 33	(1) Take steps towards reporting emissions from venting and flaring separately (2) Estimate CH4 emissions from transmission and distribution using a higher-tier method	Medium	CEA - Climate Change Unit	NIR 2017	Not started	Request for new Project frame/schedules after NIR 2015

Plan for future

[illegible]

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Thank you!

Contact:

Tatjana.obucina@azo.hr