



STATE OFFICE FOR RADIATION PROTECTION

NORM IN THE REPUBLIC OF CROATIA



Presented by: Sanja Krca
**State Office for Radiation
Protection**

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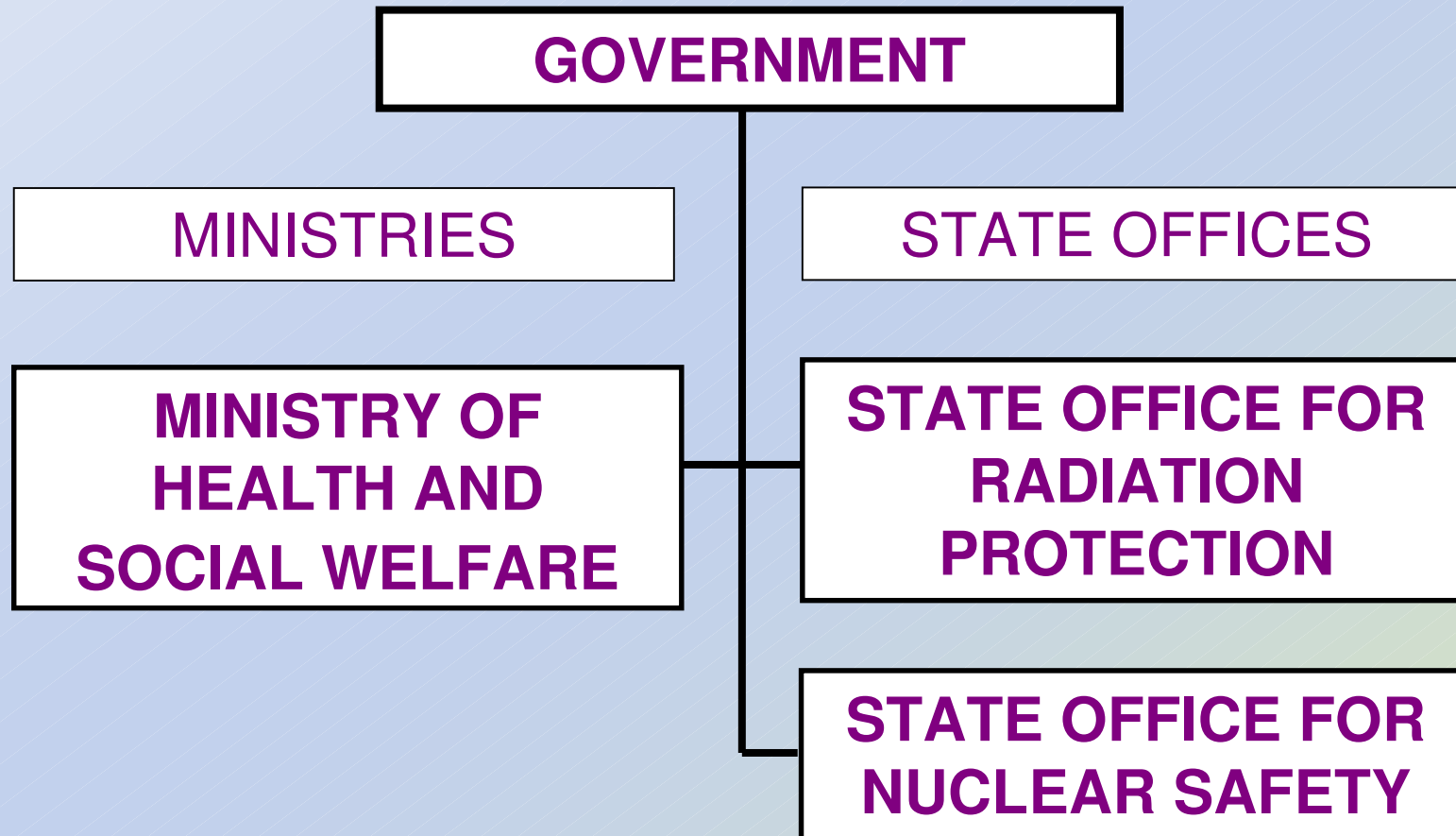
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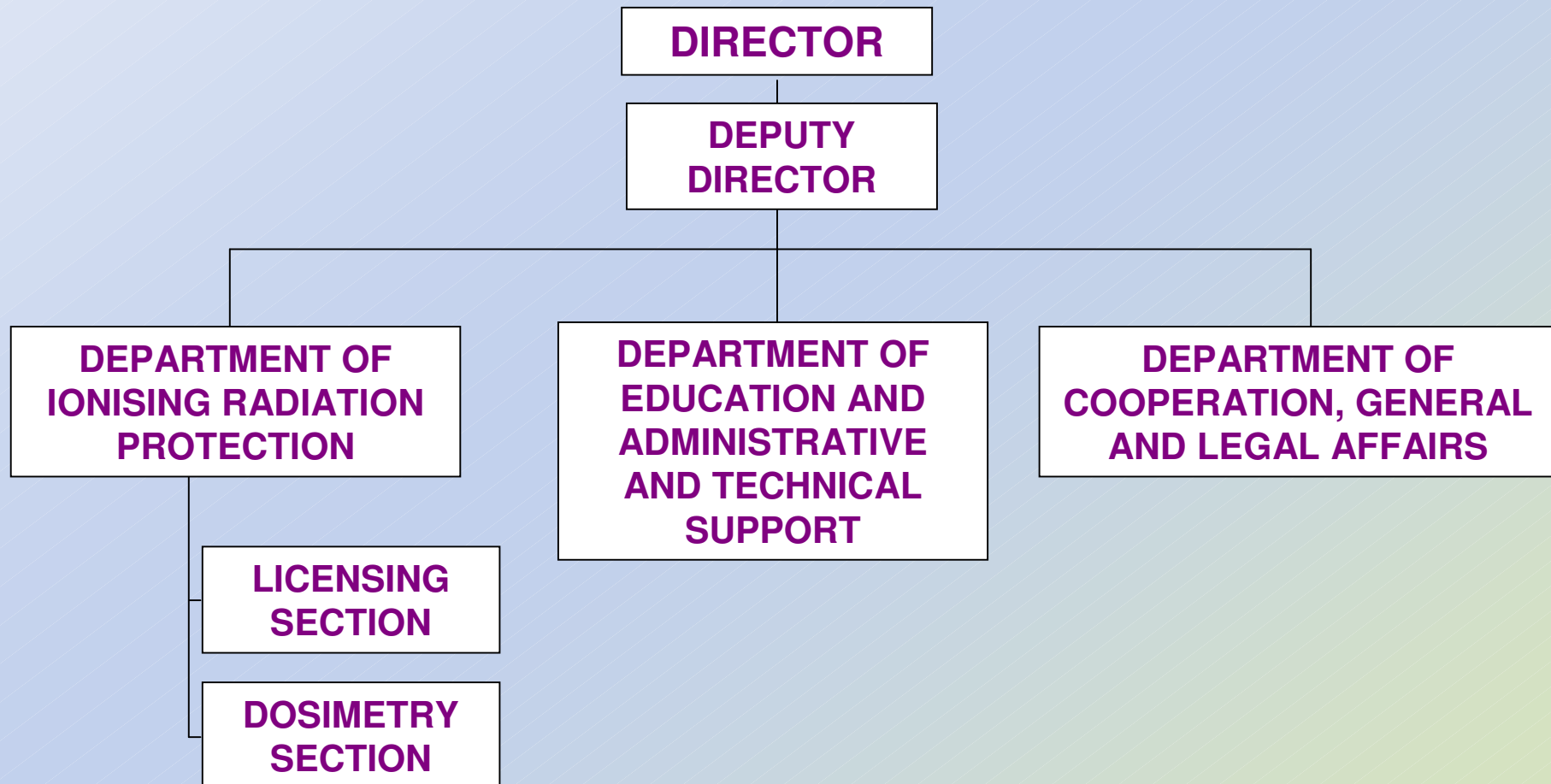


RADIATION PROTECTION INFRASTRUCTURE





AN ORGANIZATIONAL CHART OF THE STATE OFFICE FOR RADIATION PROTECTION





STATE OFFICE FOR RADIATION PROTECTION

Issues: - licences for practices
- licences for sources
- import / export / transport /
transit permissions

Manages national registries of:

- institutions (users)
- sources
- workers and doses

Prepares: legal acts

Performs affairs connected to regular and additional education and training in the field of radiation protection

Co-operates with other organisations, institutions and associations relevant to ionising radiation protection and security

Organises: RW & Envir. monitoring

MINISTRY OF HEALTH AND SOCIAL WELFARE

Issues: regulations

Department of
Sanitary
Inspection

Department of
Border Sanitary
Inspection

Enforces
Inspection of all
sources

Conducts border
control



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Administrative

**GOVERNMENT OF THE
REPUBLIC OF CROATIA**

**STATE OFFICE FOR
RADIATION PROTECTION**

**MINISTRY OF HEALTH
AND SOCIAL WELFARE**

Authorised

**TECHNICAL SERVICES FOR
DOSIMETRY AND
WORKPLACE MONITORING**

**MEDICINES FOR
OCCUPATIONAL HEALTH**

Users

MEDICINE

INDUSTRY

VETERINE

SCIENCE

OTHER

Technical services

“Rudjer Boskovic” Institute

Institute for medical research and occupational health

Ekoteh dozimetrija doo

- workplace monitoring (evaluation of radiation protection measures, contamination, quality control)
- personnel dosimetry,
- storing radioactive material,
- removal of radioactive sources
- the environmental radioactivity monitoring,



Legislation

Act on Ionising Radiation Protection and Security of the Ionising Radiation Sources

(Official Gazette No. 64/06)

Act on Sanitary Inspection

(Official Gazette No. 113/08)

Transport of Hazardous Substances Act

(Official Gazette No. 79/07)

+ 15 Ordinances and Regulation on different issues

- The state plan and program of ionising radiation protection measures and **emergency interventions** (OG 49/08)



NORM /TENORM in Croatian legislation

- ❖ Ordinance on the conditions, manner, places and deadlines for systematic testing and monitoring of the type and activity of radioactive substances in the air, soil, the sea, rivers, lakes, ground waters, solid and liquid precipitation, drinking water, foodstuffs and general use products and **dwelling and working spaces** (OG 60/08)
- ❖ Ordinance on the limits of exposure to ionising radiation, and on the conditions of exposure in special circumstances and in emergency situations (OG 125/06)
 - requirement on measuring of natural radionuclides (Ra-226) for selected materials and radon conc. in homes and public buildings
 - general empowerment of the authority to require measurements of any kind of material under “reasonable suspicion”
 - dose limits for workers 100 mSv/5y; 1 mSv/y members of the public
 - action (200-600 Bq/m³) and intervention (1000 Bq/m³) limits for radon



NORM /TENORM in Croatian legislation

- ❖ Regulation on the conditions and method of disposal of radioactive waste, spent sealed radioactive sources and ionising radiation sources which are not intended for further use (OG 44/08)
- **contains definition of TENORM and stipulation on discharges of radioactive waste into environment**
- **limits of activity conc for discharges based on 10 Bq/g K-40 and 1 Bq/g for all other natural radionuclides (in accordance with IAEA RS-G - 1.7)**
- **solid products of combustion of coal with elevated levels of natural radioactivity waste rock and other waste from mines of facilities utilising mineral ores as well as TENORM are considered**
- **for landfilling special permission is required with environmental impact assessment study**



STATE OFFICE FOR RADIATION PROTECTION

Assistance to Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Kosovo (as defined by UNSCR 1244), Montenegro and Serbia to enhance their capabilities to developing regulations on Naturally Occurring Radioactive materials (NORM) and Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM)

IPA - EuropeAid/127066/C/SER/Multi/

Consortium



Leader of the Consortium



Realisation through 6 tasks within precise time schedule (Task1)

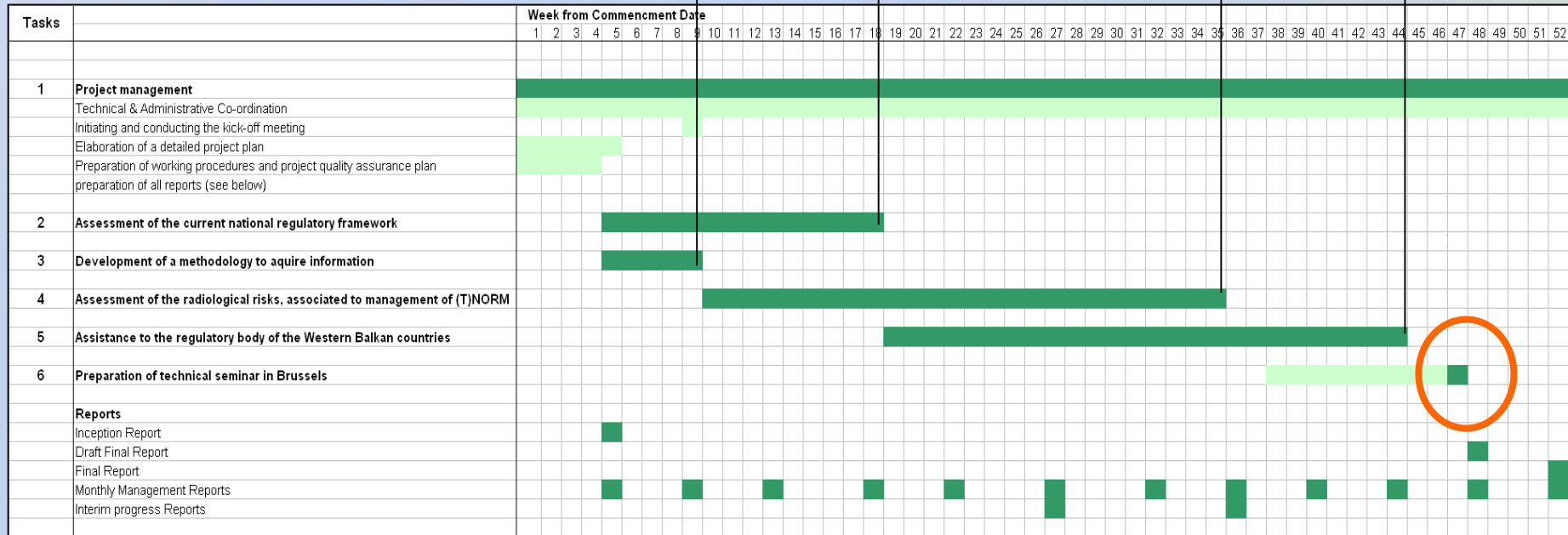
Time plan

„Gap analysis“: March

„Recommendations“: November

Methodology: February

„Assessment“: September





TASK 2: Assessment of the current national legislation

Državni zavod za zaštitu od zračenja - Windows Internet Explorer
http://www.dzzz.hr/

Državni zavod za zaštitu od zračenja

DRŽAVNI ZAVOD ZA ZAŠTITU OD ZRAČENJA

naslovna o nama upute obavijesti propisi tečajevi

telefon:
01 4881 770
fax:
01 4881 780

Frankopanska 11
10000 Zagreb

Postupci
rendgen
zatvoreni
otvoreni

poruka nama
poveznice

ENGLISH

Temeljem Zakona o djelokrugu ministarstava i državnih upravnih organizacija (NN 199/03) i Zakona o izmjenama i dopunama Zakona djelokrugu ministarstava i državnih upravnih organizacija (NN 30/04) **Državni zavod za zaštitu od zračenja** je državna upravna organizacija koja obavlja upravne i stručne poslove iz područja zaštite od ionizirajućih zračenja. Djelatnost zavoda regulirana je Zakonom o zaštiti od ionizirajućeg zračenja i sigurnosti izvora ionizirajućeg zračenja (NN 64/06).

Državni zavod za zaštitu od zračenja obavlja sljedeće poslove:

1. oblikuje standarde i metode u praćenju stanja zaštite od ionizirajućih zračenja,
2. daje odobrenja za obavljanje djelatnosti s izvorima ionizirajućih zračenja,
3. daje odobrenja za nabavu, uvoz i prijevoz izvora zračenja,
4. daje uporabnu dozvolu za korištenje izvora zračenja,
5. ovlašćuje pravne osobe za obavljanje stručnih poslova zaštite od ionizirajućih zračenja,

Nabava - mjerni uređaj,
računala, videonadzor (9.12.29.10.2009)

Osiguranje kakvoće

Mamografski uređaj

Obrasci

Odobrenje za djelatnost
rendgenski uređaji
radioaktivni izvori

Dozvola za nabavku
zatvoreni izvori
otvoreni izvori

Dozvole za uvoz / izvoz
uvoz - radioaktivni izvori
izvoz - radioaktivni izvori

Prijava
dozimetrija
električni uređaj
zatvoreni izvor

Ostalo



TASK 3: Development of methodology for screening of the relevant industries

Phosphate fertilizer plant – Kutina

Coal-fired pp – Plomin

Ex-coal-fired pp – Kastela

Oil and gas production: INA- naftaplin

Thermal spas:

Istarske; Bizovačke, Varaždinske, Daruvarske, Krapinske, Lipik, Naftalan, Stubičke, Sv. Martin, Topusko, Tuheljske

Metal production- smelters: Sisak

Aluminium production: TLM -Šibenik

Ceramic production:

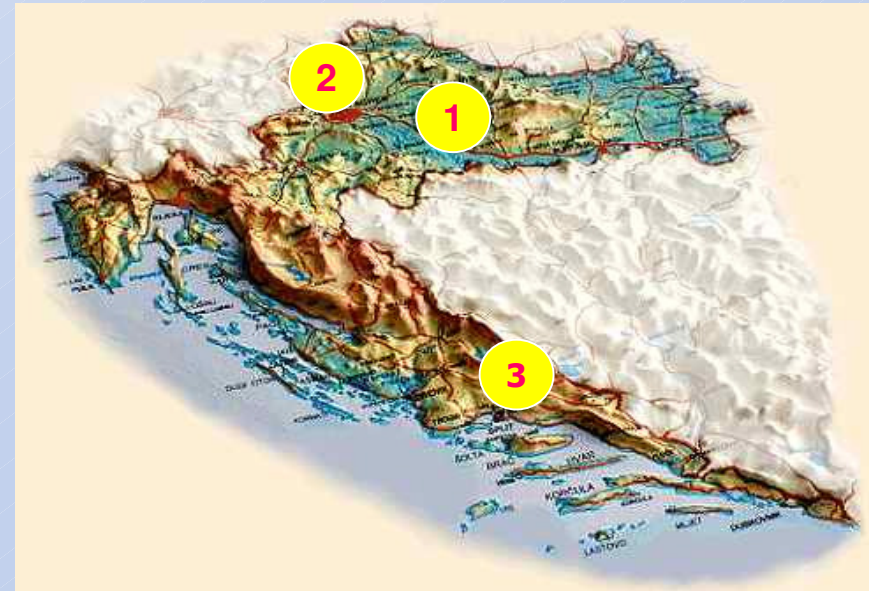
INKER d.d. – Zaprešić

KIO Keramika, Orahovica (production: 7.5 millions of m²/year, 520 employees;

Manufacture of mineral water: several springs



TASK 4: site visits and radiological risks assessment



- 1. PETROCHEMISTRY d.o.o.
phosphate fertilizer plant in Kutina**
- 2. Geothermal Spa in Stubicke Toplice**
- 3. Kemokompleks d.o.o in Kastela**



1. PETROCHEMISTRY d.o.o. phosphate fertilizer plant in Kutina

- fertilizer (1 million T/y), carbon black, and bentonite clay
- 2,600 employees
- phosphate rocks imported from Morocco
- 50 % of the yearly production is exported to Italy, Serbia, Germany
- radionuclide analyses every 2 y by Medical research department in Zagreb



phosphogypsum deposit



2. Geothermal Spa in Stubicke Toplice





3. Kemokompleks d.o.o in Kastela



- Chloralkali plant operational 1950 - 1990
- During 1970-ties complete recovery of the sand and ash landfill from coal fired pp built for chloralkali plant purposes



Remediated disposal with residues of the former production in the chloralkali plant; the disposal is covered with a foil and humus (70 – 100 cm)



Dump with ashes from the coal combustion



Pile with coal from the
Tusnica-Livno coal mine (BIH)



TASK 5: Assistance to the regulatory bodies of the beneficiary countries to lay down or improve the existing national legislation and regulations on management of NORM and TENORM, including the application of the concepts of exemption and clearance of radioactive materials

- Guidance to regulatory authority how to improve regulations for NORM
- Detailed regulations including positive list



- Increased capabilities of regulators to identify and assess NORM sites (including sampling, QA/QC, and methods of dose/risk assessment)
- Investigation results provided regulators and industry with sound foundation to protect workers and members of the public and actions to be taken



Next challenges for SORP

- Establish regulatory framework as elaborated under the project
- Enforce it



Thank you !!!!