Setting up a Large-Scale Research Facility in SEE

South East European International Institute for Sustainable Technologies (SEEIIST)

http://seeiist.eu

Dr. Sanja Damjanovic
Minister of Science of Montenegro
Chairperson of the SEEIIST Steering Committee



Joint South East European International Institute for Sustainable Technologies (SEEIIST) 'in the spirit of 'Science for Peace'



First official support of such an initiative by the Government of Montenegro in March 2017

The Project originally proposed by Prof. Herwig Schopper, a former Director General of CERN, at a Meeting of the World Academy of Arts and Sciences (WAAS) in Dubrovnik at the end of 2016

positive reception by a number of organizations and institutions



The Mission of the SEEIIST Project

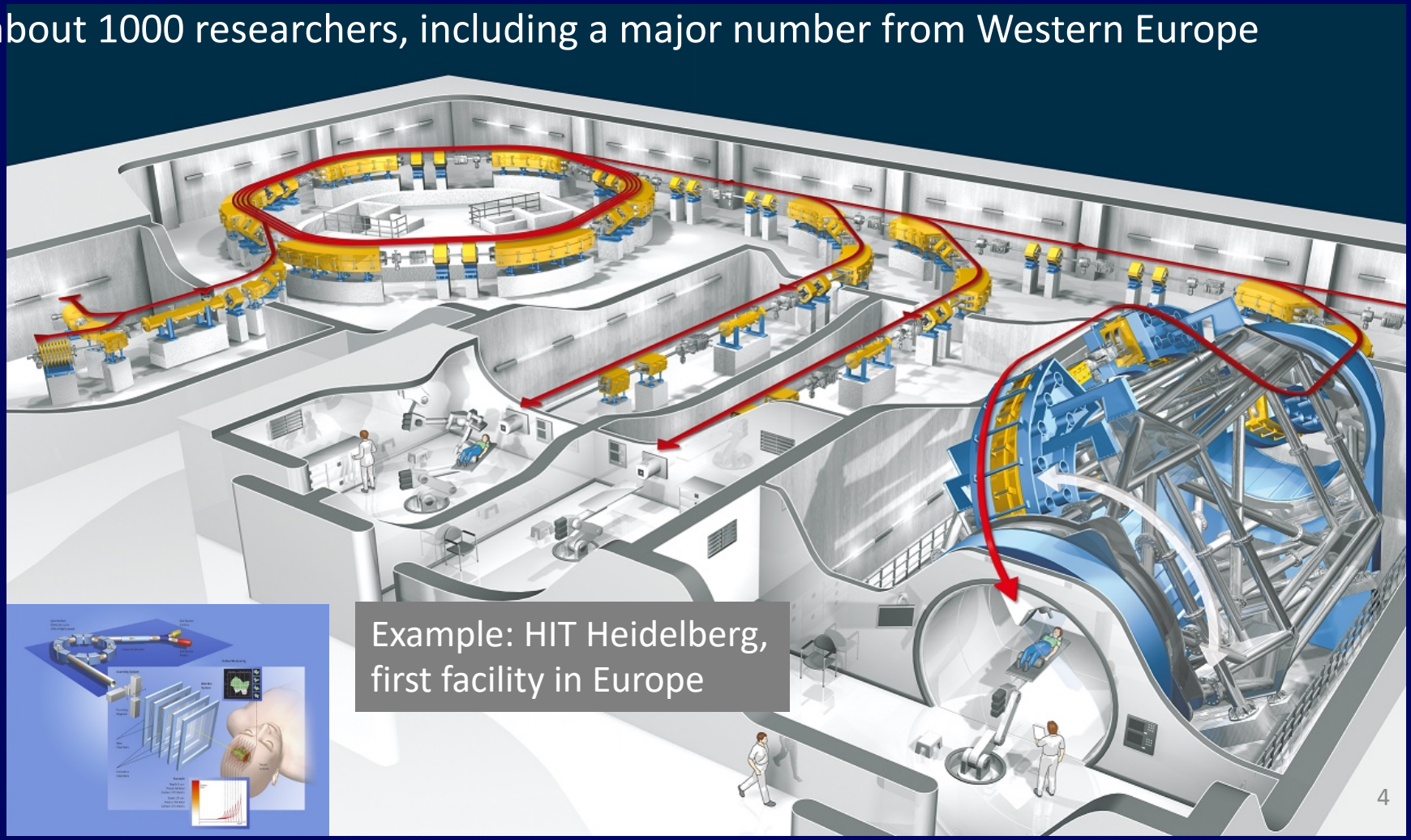
Create Regional Center of Scientific and Medical Excellence with 'first class research'

- To promote collaboration between science, technology and industry (technology transfer)
- To provide platform for improved education of young scientists and engineers (knowledge transfer)
- To slow down brain drain or event to revert it
- Recover the great tradition in technology which SEE had in the past
- Foster cooperation between countries in the region

The goals can only be achieved with a Large Scale Facility based on the latest technologies

SEEIIST: Facility for Tumour Therapy and Biomedical Research with protons and heavier ions

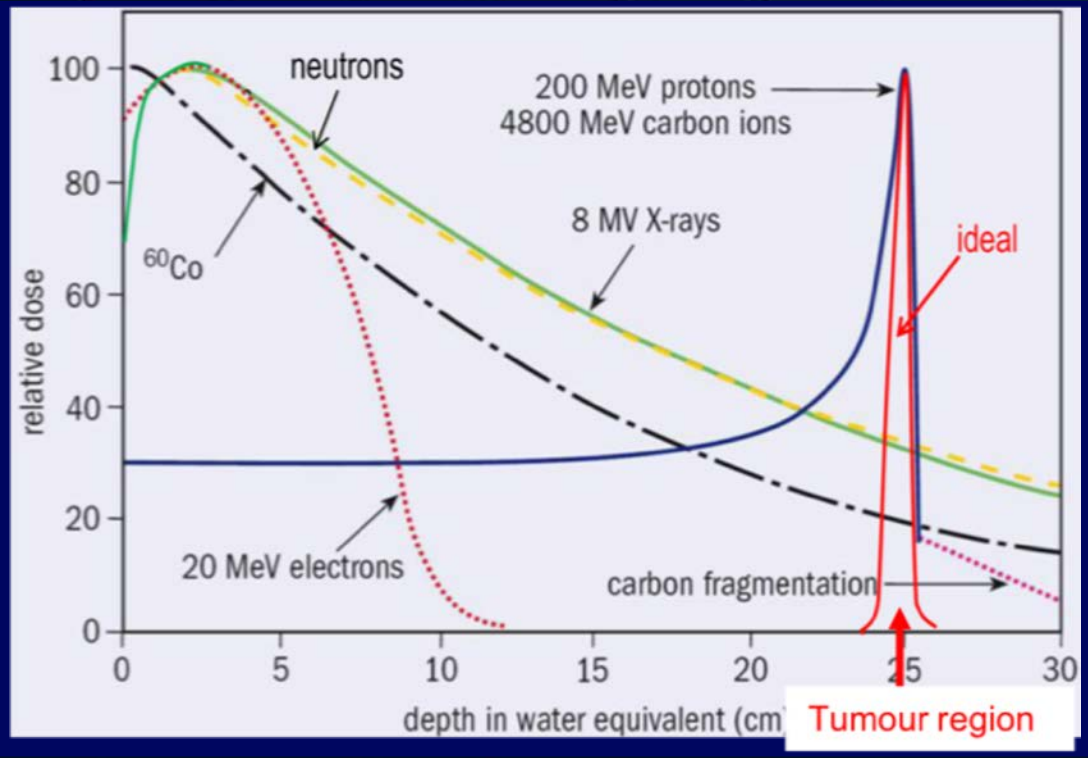
About 500 patients per year to be treated as needed for a population of 20M. In parallel, 50% of the beam time dedicated to biomedical research with multi-ion sources from H to Ne, making the SEEIIST project unique in the world. Capacity for about 1000 researchers, including a major number from Western Europe



Example: HIT Heidelberg, first facility in Europe

– Cancer Therapy with protons and heavier ions –
the most successful instrument for treatment of many type of tumours

Deposited dose along the tissue depth



Particle Therapy - Big hole in SEE



Most important for tumours close to risk organs, radioresistant tumours

Political steps taken so far (I)
Declaration of Intent signed at CERN on October 25, 2017



First official support of such an initiative by the Government of Montenegro in March 2017



Signature of Declaration of Intent by SEE Ministers of Science/corresponding Ministers or their representatives at CERN

SEEIIST Initiative transformed into a Regional Project

Candidate Members for the South-East European International Institute for Sustainable Technologies

Republic of Albania

Bosnia and Herzegovina

Republic of Bulgaria

Republic of Croatia

Hellenic Republic

Kosovo*

North Macedonia

Montenegro

Republic of Serbia

Republic of Slovenia

Signed a Declaration of Intent

Agreed 'ad referendum'

Observer



* This designation is without prejudice to positions on status and is in line with UNSC 1244/1999 and the ICJ option on the Kosovo Declaration of Independence

Political steps taken so far (II)
Formation of an Intergovernmental Steering Committee

1st Meeting 30 January 2018, Sofia
- Election of Chairperson: S. Damjanovic

2nd Meeting 30 March 2018, Tirana
- Project selection: Facility for Tumour Therapy and Biomedical Research with Protons and Heavier Ions; Draft Memorandum of Cooperation approved

3rd Meeting 13 July 2018, Skopje
- Distribution of tasks for the next Preparatory Phase of the Project

4th Meeting 27 November 2018, IAEA, Vienna
- Coordinator of the Preparatory Group elected









Political steps taken so far (III)

❖ European Commission – Directorate General for Research and Innovation (EC DG-RTD)

- Strong recognition of the Project by the Commissioner Moedas
- First direct financial support of 1 MEUR for the Design Study Phase

❖ CERN – European Organization for Nuclear Research

- To host the Working Group 1 – Accelerator Design – part of the SEEIIST Design Study Phase
- Great benefit from long experience in the design of medical accelerators

❖ GSI-FAIR – Facility for Antiproton and Ion Research

- To host the Working Group 2 – R&D and Scientific Aspects of the SEEIIST Design Study Phase
- Great benefit from long experience in Bio- and Medical Physics

❖ IAEA – International Atomic Energy Agency

- Support by the IAEA for the Capacity building program

Political steps taken so far (IV)

A mutually beneficial Memorandum of Cooperation (MoC) prepared to be signed by the Prime Ministers of the Region

MoC prepared by the SEEIIST Steering Committee and then harmonized at a special meeting attended by representatives from the Ministries of Foreign Affairs



Harmonization of the MoC at the Meeting in Podgorica on 5 March 2019 with representatives of the 5 SEEIIST Parties present, while 2 Parties provided comments electronically

With this signature political support will be expressed on the highest level – most probably the signature will occur at the forthcoming Summit of the Berlin Process in Poznan, Poland

Concept Study of the SEEIIST worked out over the year 2017



Forum held at the ICTP/Trieste on 25-26 January 2018

Scientific Concept Studies presented for the first time to the public

More that 100 participants including 40 Users from the Region

Representatives from the EC, ESFRI, IAEA, EPS, RCC, CERN, FAIR-GSI, HIT, CNAO, DESY, SESAME....

Forum on New International Research Facilities in South East Europe, ICTP, Trieste 25-26 January 2018







Setting up the Preparatory Group for the SEEIIST Design Study Phase for 18 months (Phase 1)

Overall Responsibility:
SEEIIST Steering Committee

Overall coordinator of the Preparatory Group
Dr. Horst Wenninger

- **Working Group 1**
  Accelerator Design
  at CERN
- **Working Group 2**
  R&D/Scientific Aspects
  at FAIR-GSI
- **Working Group 3**
  Legal Aspects
  + Business Plan
  SEEIIST SC



Working Group 1 – Accelerator Design (Phase 1) hosted by CERN

- Objectives:
  - Development of the design and key components for a new generation of compact and cost-effective light-ion medical accelerators
  - Comparison of different solutions, including the conventional option, to find the most optimal solution in terms of cost, performance and technical risk
- Deliverables:
  - Intermediate Report containing the basic design for the two novel accelerator options and their comparison with the conventional one
- Team Coordinator – Maurizio Vretenar from CERN

Working Group 2 – R&D/Scientific Aspects (Phase 1) hosted by FAIR-GSI

- Objectives:
  - Clinical and research plans for the SEEIIST facility
  - Participation in the design of the facility as far as its use is concerned: imaging, beam delivery, patient rooms, research vault, and related aspects
  - Detailed description of biomedical research activities: clinical research (phase II/III clinical trials), pre-clinical radiobiology, medical physics

- Deliverables:
  - Report containing the clinical and research plans

- Team Coordinator – Marco Durante from GSI

Working Group 3 – Legal Aspects + Business Plan (Phase 1)
SEEIIST SC

- Objectives:
  - Working on Legal aspects of setting-up SEEIIST
  - Finding the best model for the Constitution of the Institute
  - Conditions for the site
  - Preparation of a Business Plan
  - Potential of the regional industry
  - Creation of an Association as a Legal Entity as a temporary solution
  - Creating of a Digital Hub
  - Creation of a Network for Capacity Building
  - Green Infrastructure, including power supply

- Organization responsible:
  - Overall responsibility SEEIIST Steering Committee
  - Coordinator M. Plesko from CosyLab
  - All the Parties involved through the Team Leaders for individual tasks

Capacity Building

- Support from the IAEA for Capacity Building – first 0.5 MEUR offered during the Forum to start the Training Program

- Dedicated COST project proposal 'Advanced Cancer Therapy NETwork' (ACT-NET) prepared by ENLIGHT partners and partners from our Region

- Dedicated Multibeneficiary IPA 2019 project 'Western Balkan Regional Network for Radiotherapy and Oncology' proposed (The JRC hosted European Network of Cancer Registers, so we asked the JRC for advice on how to realize the same in the SEE region)

- Marie Curie ITN project TREASURE (Training Research for South EASt EURope with Englight for the Future) submitted (4.6 MEUR – results on July 2019)



Figure 5 TREASURE Consortium Complementarities

No matter where SEEIIST will be located – National Benefits across the whole Region –

- Treatment of patients: all participating countries will have their share for treatment of patients
- Involving the local industry: the construction of the Facility would require more than 200 companies. The production of many different components can preferentially be assigned to our local industry.
- Powerful digital networks and big data handling - to reach the clinical and scientific goals two Networks will be set up, a Clinical- and a Scientific Network, to be located in different parts of the region
- Training for building human resource capacities in many European renown institutions – all countries involved (funding from IAEA; EU H2020: COST, MC ITN; IPA2019)

Time line of the SEEIIST Project



2017-2018:
Concept Studies

2019:
- Start of the Design Study Phase at CERN
- Set-up of a legal entity

2020:
- Selection of the site
- Application for the ESFRI Road Map

2022:
Start construction of the Facility



2027:
First patient treatments

For SEEIIST up to 200 MEUR required, guaranteeing competitivity in Europe. Multiple sources of financing necessary: EU Structural and cohesion funds, IPA funds, some contributions from member-states, other funds

We also hope for the support by he Berlin Process

Kick-off Meeting planned in Montenegro in 2019 will mark the start of the SEEIIST Design Study Phase in

The event will be attended by the EU Commissioner for Research and Innovation, Mr. Carlos Moedas, and will generally be on a very high level of participation

The exact date of the event will soon be known
-You are welcome to attend this special event

NEW NARRATIVE FOR THE WESTERN BALKANS VISION 2030

1ST FORUM SCIENCE AND INNOVATION 2030 VISION FOR THE WESTERN BALKANS

SEE IIST
South East European International Institute for Sustainable Technologies

SCIENCE FOR DIPLOMACY
SCIENCE FOR SOCIETY

http://seeiist.eu

Thanks for your attention



NEW NARRATIVE
FOR THE WESTERN BALKANS
VISION 2030

1ST FORUM
SCIENCE AND INNOVATION
2030 VISION FOR THE WESTERN BALKANS

PODGORIČKI KLUB
PODGORICA CLUB

MONTENEGRO
MINISTRY
OF SCIENCE

SEEIIST has potential to become one of the EU's flagship projects within the framework of the European Neighbourhood Policy