

Distinguished guests,
Ladies and Gentlemen

Let me begin by saying that it is a great honour to have been invited to give this introductory address at the 8th conference on the sustainable development of energy, water and environment systems.

This is a conference that I attend since its early start and I should like express my admiration for the achievement of Professor Neven Duic - the main organiser of the conference – in having managed to establish this conference on such a sound footing. I am aware of all the hard work that he has devoted to ensuring that this conference is a success.

Professor Neven Duic has worked with me in the past in Lisbon and the scale and scope of this conference – with researchers attending from across South-East Europe, all over Europe and, indeed, from across the

world – is a sign of the impact that he has had in his career in Croatia and of his dedication to furthering science and innovation.

It is also a particular source of gratification for me that this is the first time that the conference has been held with Croatia as a full member of the EU.

Being associated with this part of the world since the 80's, when I used to attend the scientific meetings of the International Centre of Heat and Mass Transfer that was located at that time here in Dubrovnik, having collaborated with many top class scientists such as Professor Naim Afgan, Professor Kemo Hangalic, Professor Neven Duic, I am particularly happy with the fact that Croatia is now a member of the European Union and I hope that the other countries of the region will follow soon.

In my speech, today, I should like to begin by outlining something of the nature of recent developments in European policy with regard to research and innovation, with particular reference to the Innovation Union and the ERA.

I shall then go on to say a few words about the general nature of the new European Framework programme Horizon 2020 before finishing by devoting some time to specific questions related to energy, water, environment and sustainable development within the scope of Horizon2020.

1) European Policy in Research and Innovation

Research and innovation taken together are one of the foremost priorities of the Europe 2020 strategy. In this respect, the Europe 2020 strategy focuses on five ambitious goals in the areas of employment, innovation, education, poverty reduction and climate and energy.

The policy aims to deliver growth that is:

- firstly, *smart*, as this involves more effective investments in education, research and innovation;
- secondly, *sustainable*, due to a decisive move towards a low-carbon economy; and thirdly, *inclusive*, with a powerful emphasis on job creation and poverty reduction.

More specifically, one of the pillars of the European Policy is the innovation union. This innovation union is necessary because we, in Europe, must do more to ensure that we transform our research activities into concrete results. This entails generating new and better services and products if we are to remain competitive in the global marketplace and to improve the quality of life in Europe.

I would even go so far as to say that we are currently facing something of an 'innovation emergency'. Although the EU market is the largest in the world, it remains fragmented and is still not innovation-friendly enough. Moreover, Europe is spending 0.8% of GDP less than the US and 1.5% less than Japan every year. In this context, thousands of our best researchers and innovators have moved to countries where conditions are more favourable. At the same time, other countries such as China and South Korea are catching up fast.

In this context, the Innovation Union is a crucial investment for our future.

Within the Innovation Union there are two elements that stand out. The first is the construction of the The European Research Area –and the second is the funding of research and innovation.

Here, I should like to concentrate on the ERA, in particular with specific reference to the advantages that we can gain from increased mobility, competition and cooperation.

Indeed, given its stress on open innovation and on collaboration in the field of science, the ERA might even be seen as a “fifth freedom” in addition to the free circulation of people, capital, goods and services. The fifth freedom concerns the free free circulation of researchers and scientific knowledge, including via digital means.

The five main **ERA priorities** that have now been elaborated are:

a) Firstly, **more effective national research systems**

b) Secondly, **optimal transnational co-operation and competition.**

c) The third ERA priority involves an **open labour market for researchers** - to ensure the removal of barriers to researcher mobility, training and attractive careers;

d) **Fourthly, the ERA seeks to foster gender equality and gender mainstreaming in research.**

~ And finally, the ERA aims to encourage the **optimal circulation, access to and transfer of scientific knowledge including via digital ERA.**

2) *H2020*

Turning now to the second of my main subjects, I should like to outline something of the nature of the new Horizon 2020 programme, a programme with which I have been directly involved.

Horizon 2020 constitutes the European Union framework programme for Research and Innovation over the period from 2014-2020. Horizon 2020 brings together three stand-alone initiatives (the 7th Research Framework Programme (FP7), the Competitiveness and Innovation Framework Programme (CIP) and the EU contribution to the European Institute of Innovation and Technology (EIT).

Horizon 2020 has the general objective to build a society and a world-leading economy based on knowledge and innovation across the whole Union, while contributing to sustainable development. It will support the Europe 2020 strategy and other Union policies as well as the achievement and functioning of the European Research Area.

In this respect, the programme aims at coupling research with innovation by turning scientific breakthroughs into innovative products whilst addressing the different challenges posed by globalisation. This will enable H2020 to meet the needs of companies,

universities and institutes in terms of rapid and simplified access to financial support. To achieve these goals, the programme identifies three priorities: excellent science, industrial leadership and societal challenges, each of which is divided into a number of definite objectives and activities.

Excellence

Excellence – without geographical constraints – is the primary criterion for participation in Horizon 2020 (ERC, Marie Curie, FET, Research Infrastructures).

Against this background, a significant innovation is the creation of “stairways to excellence” concept. This involves teaming initiatives whose objective is to establish and reinforce partnerships between regional research units, countries and leading international counterparts. This will enable Europe to foster units of

embryonic excellence, such as small research groups and highly innovative start-ups.

More generally, with regard to how widening excellence will be fostered, **three** initiatives stand out.

These are:

- *firstly*, the teaming of excellent research institutions and low performing RDI regions with the aim of creating new (or of significantly upgrading existing) centres of excellence in low performing RDI Member States and regions.

- *secondly*, the twinning of research institutions in order to significantly strengthen a given field of research in an emerging institution through links with at least two other leading institutions at an international level.

- the *third initiative* that stands out is that of establishing 'ERA Chairs' to attract outstanding academics to institutions with a clear potential for

research excellence, in order to help these institutions fully unlock this potential.

Synergies between Funds

In parallel with these measures, it is also necessary to ensure greater complementarity between Horizon 2020 and various European, national and regional financial instruments. In particular, we require a multi-fund approach and a strengthening of the bridges that link Horizon 2020 and other, available funds and most particularly the structural funds. In this respect, the structural funds have a complementary role to play with regard to what Horizon 2020 seeks to achieve. Upstream from Horizon 2020, the structural funds can be used for capacity building. Downstream from Horizon 2020, the structural funds will help smooth the passage from conception to market.

*SME participation (Pillar 3 - Industrial leadership
KETs + SMEs)*

In particular, Horizon 2020 also aims at increased industry participation, including SMEs, in the R&D framework, something that has dropped significantly over the last few years. Indeed, Pillar II of the new framework programme is entirely dedicated to industrial leadership based on R&D and innovation agendas defined by industry, including SMEs. The second pillar in Horizon 2020 is devoted to helping secure industrial leadership in innovation, key technologies and to facilitating access to capital and support for SMEs.

Simplification

The last element that I should like to focus on today – one that has something of the status of a crusade with me – is that of simplification. Horizon 2020 includes the greatest part of the many recommendations that were

made in my simplification report. These include four recommendations in particular:

~ A single set of rules for all elements of Horizon 2020.

~ Horizon 2020 will accept the different accounting practices that the participants have already adopted in their respective countries.

~ The programme will also involve simplification of the time recording system.

Finally, the new rules should facilitate the recruitment of staff to universities in order to work on Horizon 2020 projects. Hopefully, this will keep young researchers in gainful employment.

3) Energy, Water and Environment in H2020 (Pillar 3 - 7 societal Challenges)

The last of the *three main themes* that I should like to touch on, today, specifically concerns specifically questions related to energy, water and the environment. I shall concentrate on the contribution that H2020 is able to make in these fields.

Two of the seven main challenges in Pillar three that have been identified in the societal challenges pillar of Horizon 2020 are specifically devoted to the subjects that are the main focus of this conference. These are, firstly, secure, clean and efficient energy, and, secondly climate action, resource efficiency and raw materials.

Energy

With regard to energy, to begin with, let me give you an idea of the main goals that we aim to achieve. The specific objective is to make the transition to a

reliable, affordable, publicly accepted, sustainable and competitive energy system. The aim is to reduce fossil fuel dependency in the face of increasingly scarce resources, increasing energy needs and climate change.

More specifically, the European Union intends to reduce greenhouse gas emissions by 20 % below 1990 levels by 2020, with a further reduction to 80-95 % by 2050. In addition, renewables should cover 20 % of final energy consumption in 2020 coupled with a 20 % energy efficiency target.

In this process, the following eight areas will be given specific support:

- Reducing energy consumption and carbon footprint by smart and sustainable use

- Low-cost, low carbon electricity supply
- Alternative fuels and mobile energy sources
- A single, smart European electricity grid
- New knowledge and technologies
- Robust decision making and public engagement

- Market uptake of energy innovation as this builds on Intelligent Energy Europe

Achieving these objectives will require an overhaul of the energy system combining low carbon profile and the development of alternatives to fossil fuels, energy security and affordability.

Environment and Water

To finish with, I should like to devote some time to questions related to water and the environment. The specific objective of the Societal Challenge "Climate Action, Environment, Resource Efficiency and Raw Materials" is to achieve a resource - and water - efficient and climate change resilient economy and society.

Parallel goals include the protection and sustainable management of natural resources and ecosystems and a sustainable supply and use of raw materials.

In this respect, the following specific actions will be supported:

- Combating and adapting to climate change
- Protecting the environment, sustainably managing natural resources, water, biodiversity and ecosystems
- Ensuring the sustainable supply of non-energy and non-agricultural raw materials
- Enabling the transition towards a green economy and society through eco-innovation
- Developing comprehensive and sustained global environmental observation and information systems
- International Cooperation

Conclusion

This brings me to the end of what I have to say to you today and it only remains for me to express the hope that the work that we have accomplished in Brussels will

translate – in a direct and useful manner – into concrete results for European citizens in general and for Croatia and the other countries in South East Asia in particular. I remain optimistic that we have made significant steps in the right direction and, it only remains for me to wish you a fruitful and stimulating conference.

Thank you very much.