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Report on

Biogas Policies in Croatia

Deliverable 3.1

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1. Introduction

This report was written in the frame of the BIG>EAST project (EIE/07/214), which is supported by the European Commission within the framework of the Intelligent Energy for Europe programme. The report aims to give an overview about current policies on biogas production, utilisation and related issues in order to facilitate the broader implementation of biogas projects in the European Union. Emphasis of this overview will be on policies at the European level as well as on national level as it is one of a series of six reports dealing with the target countries of the BiG>East project: Bulgaria, Croatia, Greece, Latvia, Romania, and Slovenia. Since Croatia is an accession country to the EU and currently undergoes through the process of national legislation harmonisation to the *acquis,* the first part of this report explains the EU policies and targets related to RES, in general, and biogas, in particular, as those are the standards that Croatia will have to meet in the near future. Furthermore, apart of the legal documents stated in the Annex 1, the summary on European biogas legislation provides an introduction to biogas discussion within the EU member countries and associations aiming to improve emphasise and/or confirm biogas position within the policies and strategies in different fields of expertise.

Europe's current situation with exploding fossil energy prices and rising dependency on energy imports makes it highly necessary to produce and valorise biogas in terms of heat, electricity and fuel. In 2006, about 5.35 Mtoe of biogas were produced for energy uses in the European Union with Germany and the UK leading the way.

However, future development of biogas technologies is highly dependant on the willingness of politicians and policy makers that formulate policies and introduce legislations that will facilitate biogas production and utilisation for energy purposes. Biogas production is related to numerous sectors – agriculture and food processing industry (substrate, fermentation residues - fertiliser), environmental protection (decreasing methane emissions, reducing pollution of underground waters), waste management (one of the techniques of recycling and prevention of waste disposal) etc. This multidisciplinary asset of biogas could actually become its own obstacle for development since there is a huge possibility for biogas to be described in several policy papers indirectly, as one of the desirable and suitable tools for achieving the policy goals but not to have one direct policy that will truly enhance development of biogas sector.

This report further focuses on the national legislation directly or indirectly related to biogas and development of biogas sector in Croatia by providing a brief overlook on the following topics:

- How far Croatia reached in the implementation of the *Acquis* on the renewables?
- Which are the main legal documents that describe biogas production in Croatia?
- What are the main support instruments in Croatia in terms of financial support, feed-in tariff, incentives etc.?
- What is the possible contribution of biogas to the national targets?
- What sectors are mentioning biogas in their legal documents?

2. EU Policies and Targets

2.1. Renewable energy policy in the European Union

The development of renewable energy - particularly energy from wind, water, solar power and biomass - is a central aim of the European Commission's energy policy. There are several reasons for this. Renewable energy has an important role to play in reducing Carbon Dioxide (CO_2) emissions - a major Community objective. Increasing the share of renewable energy in the energy balance enhances sustainability. It also helps to improve the security of energy supply by reducing the Community's growing dependence on imported energy sources. Renewable energy sources are expected to be economically competitive with conventional energy sources in the medium to long term.[1]

The European Commission has set the target to reduce greenhouse gas emissions from developed countries by 30% by 2020 and it has already committed to cutting its own emissions by at least 20% and would increase this reduction under a satisfactory global agreement[2]. In January 2007 the European Commission presented a "Renewable Energy Roadmap" as part of its "energy-climate change" package[3]. This Roadmap was endorsed by the Commission in March 2007 with the following targets:

- A binding target to have 20% of the EU's overall energy consumption coming from renewables by 2020, and;
- A binding minimum target for each member state to achieve at least 10% of their transport fuel consumption from biofuels. However, the binding character of this target is "subject to production being sustainable" and to "second-generation biofuels becoming commercially available".

In November 2007, the European Commission presented a "Strategic Energy Technology Plan (SET-Plan) - Towards a low carbon future"[4]. The SET-Plan proposes to deliver the following results: (i) a new joint strategic planning, (ii) a more effective implementation, (iii) an increase in resources, and (iv) a new and reinforced approach to international cooperation. The Commission hopes for endorsement (and financing commitments) from EU leaders for the SET-Plan in March 2008.

Furthermore, in January 2008 the Commission has put forward a larger package on renewable energies and climate change and published a Draft Directive "on the promotion of the use of energy from renewable sources which has to be reviewed and approved by the European Parliament and the Council before entering into force. This Directive is a comprehensive 'framework directive' on renewable energies including an update of the biofuels directive.

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[1] Source: http://ec.europa.eu/energy/res/index_en.htm

[2] Source: COM(2007)1final „An Energy Policy for Europe"

[3] Source: COM(2006)848final „Renewable Energy Road Map: Renewable energies in the 21st century: building a more sustainable future" (10.1.2007)

[4] Source: COM(2007) 723 final „A EUROPEAN STRATEGIC ENERGY TECHNOLOGY PLAN (SET-PLAN) Towards a low carbon future"

2.2. Biogas policies and markets in the European Union

Within the diversification of energy resources and the increased reliance on renewable energy resources, biomass is considered to play an outstanding role in Europe's energy policy. As highlighted in the Commission Biomass Action Plan[5], published on 7 December 2005, "Energy is a key in helping Europe to achieve its objectives for growth, jobs and sustainability". The increasing oil prices and Europe's dependency on energy imports are considered to menace the economic growth within the European Community. In 2005, the EU met about 4% of its energy needs from biomass. The main objective of the Biomass Action Plan is to double this share by 2010. The plan would reduce oil imports by 8%, prevent greenhouse gas emissions worth 209 million tons CO_2-equivalent per year and create up to 300,000 new jobs in the agricultural and forestry sector.

Currently, the biogas sector in some European countries is faced by rapid technical and non-technical developments and innovations, and biogas markets are growing in these countries at a considerable pace. For instance, in Germany, the biogas market is booming although there was a significant decrease of new installed biogas plants in 2007. Until the end of 2007 about 3.700 biogas plants were in operation. Most of the newly installed biogas plants in Germany have an electric capacity of 500 kW by using CHP installations and are operated with energy crops as feedstock. New applications such as biogas up-grading to vehicle fuel (in Jameln) and feeding into the grid (in Pliening, Kerpen and Straelen) have come into operation. In Austria the number of biogas plants has increased from about 170 in 2004 to more than 340 in 2005 and to almost 600 in 2006, the majority of plants having an electric capacity of 100 to 500 kW. By September 2006, 62 landfill gas recovery plants, 134 sewage sludge digesters, 350 biogas and co-fermentation plants, 25 anaerobic waste treatment plants (industry), and 15 biowaste digestion plants (municipalities) were in operation. Finally, in Denmark the political aim is to produce 8 PJ from biogas through the construction of 40 new biogas plants by 2008. This target means a doubling of the present production and an increase of 1 PJ per year.

At the same time the biogas market is very small in many other European countries. This situation needs to be changed in the next years since these countries have to take actions in order to fulfil Europe's energy targets.

2.3. Legislation on biogas and related issues in the European Union

The production and utilization of biogas is affected and influenced by many European and national legislations.

Decision-making at European Union level involves various European institutions, in particular the European Commission, the European Parliament (EP), and the Council of the European Union. In general it is the European Commission that proposes new legislation, but it is the Council and Parliament that pass the laws. Other institutions and bodies also have roles to play. The rules and procedures for EU decision-making are laid down in the treaties. Every proposal for a new European law is based on a specific treaty article, re-

[5] COM (2005) 628: "Biomass Action Plan"

ferred to as the 'legal basis' of the proposal. This determines which legislative procedure must be followed. The three main procedures are 'consultation', 'assent' and 'co-decision'.

The following section gives an overview about European Directives and Regulations which are related to biogas production and utilization as well as to other important issues related to biogas. They may affect the European Biogas market directly or indirectly. The definitions about the borders of 'biogas production' allow a certain amount of flexibility, since many factors are important during the whole life cycle from agricultural feedstock production to the end use of biogas. Only the most important legislations were selected and briefly described (see Annex 1).

2.3.1 Directives

A directive is a legislative act of the European Union which requires member states to achieve a particular result without dictating the means of achieving that result. It can be distinguished from European Union regulations which are self-executing and do not require any implementing measures. Directives normally leave member states with a certain amount of flexibility as to the exact rules to be adopted. Directives can be adopted by means of a variety of legislative procedures depending on its subject matter. An overview of European Directives on biogas is provided by Rutz & Prassl (2008)[6] and in Annex 1.

2.3.2 Regulations

A regulation is a legislative act of the European Union which becomes immediately enforceable as law in all member states simultaneously. Regulations can be distinguished from directives which, at least in principle, need to be transposed in national law. Under the European Constitution regulations would have become known as "European laws" but this proposal has since been dropped. An overview of European Regulations on biogas is provided by Rutz & Prassl (2008)[7] and in Annex 1.

2.4. Summary on European biogas legislation

Although currently no specific Directive or Regulation exists which is only dedicated to the production and use of biogas, the need for the implementation of a legislative framework on biogas is highlighted by many institutions and stakeholders. For example the Committee on Agriculture and Rural Development of the European Parliament has recently drafted a report[8] and acknowledges biogas as a vital energy resource that contributes to sustainable economic, agricultural and rural development and environmental protection. It furthermore encourages both the European Union and the Member States to exploit the

[6] Rutz D., Prassl H. (2008): Assessment of Biogas Policies in the European Union. – Report of the BiG>East Project; www.big-east.eu

[7] Rutz D., Prassl H. (2008): Assessment of Biogas Policies in the European Union. – Report of the BiG>East Project; www.big-east.eu

[8] Source: Draft Report on Sustainable Agriculture and Biogas: a need for review of EU-legislation (2007/2107(INI)) 29.11.2007

huge potential in biogas by creating a favourable environment as well as maintaining and developing support schemes to inspire investment in and sustenance of biogas plants.

More specifically, the Committee on Agriculture and Rural Development of the European Parliament highlights the need for a new biogas directive and review of legislation:

- First and foremost, an EU-directive on biogas production is needed, with specific targets for the agricultural biogas share within the target for renewable energy production, statistical elements, measures for construction and promotion of biogas-installations based on a national or regional impact evaluation, measures for dissemination and promotion of results gained from prior experiences, call for national and regional planning in order to restrict legal and administrative hindrances, and recommendations for the minimum level and yearly adjustment mechanism of payment for 'green-electricity' and 'green gas'.
- The legislation on the use of residues from biogas installations should be revised.
- A ban should be considered on using growth enhancers in animal feed containing heavy metals if this should be a European wide problem for later use of biogas residues on fields.
- The effective enforcement of the IPPC and Nitrates Directives are crucial, along with the Sewage Sludge Directive, Water Framework Directive, Birds directive, Habitats Directive and the Heavy Metals legislation.
- A strategy is needed to include biogas installations into the Kyoto-mechanism.
- EU-wide legislation is needed to ensure that biogas - upgraded to natural gas quality – can be fed into the natural gas network.
- Proposals are needed for further enhancing the use of animal by-products for biogas as announced in the 'Biomass action plan',
- Member States should include biogas in their mid-term evaluation of existing rural and regional development programmes and propose actions for the future. Rural Development strategies, including LEADER projects should contain development scenarios for biomass and biogas utilities.
- The Commission should present a coherent report on European biogas production to the European Parliament taking into account the above mentioned proposals and the progress made.
- Efforts should be made to fund research, development and demonstration.

3. Renewable energies support instruments in Croatia

RES market has developed only recently in Croatia although RES utilisation has been recognised in project PROHES (project for Development of Croatian Energy System) through national energy plans (five of them dedicated for each of RES type) from 1998 and the Energy Law since 2001. In June 2007, the Croatian Parliament has adopted a package of five sublaws that provided basis for development of RES-E market. The market is still at

its beginning with implementation difficulties at the beginning of their enforcement. The Ministry, together with the responsible authorities (i.e. HROTE, HERA, HEP-TSO/DSO), is aware of those difficulties and currently working on legislation improvements. Until October 2008, there were 6 Decisions on Gaining the Eligible Producer Status (completed process to become eligible for the benefits of the feed-in tariff) and 4 Preliminary Decisions on Gaining the Eligible Producer Status (beginning of the procedure). Three wind parks, two small hydro power plants and one solar PV system gained the Eligible Producer status. Officially registered projects under development are four wind parks and one solar system. Since today, there is no biomass projects registered.

Possible bottle necks for biogas projects are:

1. *not described in the Spatial Plans of Counties*

   Spatial planning – so far, none of the Counties has included biogas plants in their Spatial Plans (unlike i.e. wind power plants) which makes it difficult to obtain Location permit for implementing a biogas plant project and starting the procedure of Eligible producer. The solution could be in including the biogas plants "criteria" in the descriptive part of the County's Spatial Plan.

2. *long, time consuming and unbalanced procedure for obtaining permits*

   In order to gain the Eligible producer status, wind power plant owners had to submit 63 permits and consents in total. Timing needed for obtaining a permit or consent is described by sublaws and is bounded by discrepancies. Word of a mouth regarding biogas plants is that there are several on-going project but all of them failing to reach the Preliminary Consent at least. Project developers are vague when asked directly about a specific problem.

3. *imprecise practice related to the Environmental Impact Assessment (EIA) Study*

   The content and criteria of the EIA study are vague. Apart of having an EIA accepted, a biogas project developer has to invite responsible institutions for consultation which is time consuming and difficult to pass as the invited parties have little knowledge on biogas itself.

This and other issues will be more elaborated in the Task 3.2 Deliverable for Croatia - Report on Barriers for Biogas Implementation in Croatia.

Biogas is the least explored renewable energy source in Croatia with few attempts to build a biogas plant. All those projects are claimed to be pending due to the existing legislation.

Nevertheless, it is fair to say that support instruments for renewable energies in Croatia exist in legal framework, financial mechanisms such as funding (Environmental Protection and Energy Efficiency Fund), feed-in tariff system, agricultural subsidy for producing energy crops for biofuels (later this was withdrawn), loans (Croatian Bank for Reconstruction and Development) as well as in some regional authorities. The support in regional authorities (administrative units – Counties) is rather crucial as they are responsible for spatial planning and issuing location permits necessary for both obtaining the eligible producer status and building permit.

IPARD Programme 2007-2013 - Agriculture and Rural Development Plan for the Republic of Croatia (2007) states: In the line with the sub-sector analysis and the objectives set in

the IPARD strategy for Croatia, the Investments in construction and/or reconstruction and/or equipment facilities of plants for renewable energy resources usage (like bio diesel, biogas and others) on agricultural holding will be eligible.

Croatia is Annex B country of the Kyoto Protocol, a member of the United Nations Framework Convention on Climate Change (UNFCCC) in 1996, and of the Kyoto Protocol in 1999, which derives obligations for decrease of green houses gasses emissions. According to the Kyoto protocol, Croatia needs to decrease the average emission of GHG for the period of 2008-2012 by 5% in comparison with 1990 (reference year).

4. Biogas Policies in Croatia

4.1. Legislative framework on RES and Biogas

In Croatia, renewable energy utilisation is described as of national interest in the Energy Act (OG 68/01, 177/04 and 76/07). The same law defines renewable energy sources (article 3) and prescribes the utilisation and financial incentives for the utilisation of renewable energy sources. Amendments on the Energy Act from 2004, article 10, state:

"*(2) Ordinance on utilisation on renewable energy sources and cogeneration, which is delivered by the Minister, will determine renewable energy sources to be utilised for energy production, conditions and possibilities of their utilisation, including planning, register of renewable energy sources and cogeneration projects as well as other issues related to utilisation of renewable energy sources and cogeneration.*

(3) Financial incentives for renewable energy sources and cogenerations are determined by this Law, special law which will regulate production, distribution and supply of heat energy, Law on Environmental Protection and Energy Efficiency Fund and Law on governmental support."

Article 25 of the Energy Act describes energy prices that could be either regulated or market prices. Both prices' structure includes "fee for promotion of renewable energy sources and cogeneration".

The Electricity Market Act prescribes: the obligation to take over the total electricity produced from eligible producers (Article 8), the obligation to submit the transmission system operator's data to the market operator for the purpose of guarantee of origin of electricity, enter into contracts with all suppliers for the purpose of ensuring a minimum share of electricity produced from renewable energy sources and cogeneration (Article 30).

So far, production of RES-E is fully described by the Electricity Marker Act and related five sublaws:

- Tariff system for the production of electricity from renewable energy sources and cogeneration, OG 33/07;
- Regulation on the fee for the promotion of the electricity production from renewable energy sources and cogeneration, OG 33/07;

- Ordinance on the usage of renewable energy sources and cogeneration, OG 67/07;
- Regulation on a minimum share of electricity produced from renewable energy sources and cogeneration in the electricity supply, OG 33/07; and
- Ordinance on the obtaining of the eligible electricity producer status, OG 67/07.

The fee is further elaborated in the Ordinance on Fees for Incentivizing of Electricity from Renewable Energy Sources and Cogeneration (OG 33/07). According to the Ordinance, the incentive fee is collected from all electricity customers in Croatia starting from 1 July 2007. The collected fees are used by HROTE[9] for payment of incentive price to eligible producers for electricity delivered to the power system, in compliance with the Tariff System for the Production of Electricity from Renewable Energy Sources and Cogeneration (OG 33/2007).

The incentive fee is collected through usual electricity payments, hence from tariff customers through money order of HEP- TSO (by specific distribution area) and from eligible customers by their suppliers.

The amount on electricity bills due to incentive fee for year 2008 is 0.0089 HRK per kilowatt-hour (HRK/kWh) + VAT, according to the Ordinance on the Amendments to the Ordinance on Fees for Incentivizing Electricity Production from Renewable Energy Sources and Cogeneration (OG 133/2007). Every customer can easily calculate the amount he/she pays for incentivizing electricity production from renewable energy sources and cogeneration by multiplying the electricity consumed (kWh) and the incentive fee (HRK/kWh). The incentive fees for year 2009 and 2010 amount 0.0271 HRK/kWh and 0.0350 HRK/kWh, respectively.

Continuing on the RES-E sublaws and support instruments on RES, Croatia has developed support mechanisms for RES-E that are combination of feed-in tariff system with system quota obligations or minimal share of RES-E to be incentivized. In that sense, the national target for RES-E amounts 5.8% of total electricity consumption by 2010. In order to become eligible for the feed-in tariff system, one should gain a status of eligible producer. National target of 5.8% of RES-E corresponds to 360 MW that HEP-TSO has set as a limit for accepting the electricity from RES regarding the grid related issues.

Permission procedures depend on the renewable source (plant) and are consisted of a series of procedures, which are prescribed or are in the phase of preparation, and are within the

[9] HROTE (Hrvatski operator tržišta energije d.o.o.) – Croatian Energy Market Operator - started to operate on 4 April 2005. HROTE performs activities of organizing the electricity market as a public service, under the supervision of the Croatian Energy Regulatory Agency (HERA). HROTE's main responsibilities include: issuing Electricity Market Rules, registration of contractual obligations among market participants, keeping records of eligible customers, keeping records of suppliers, preparation of a day ahead market plan, settlement of balancing energy, *collecting fee for incentivizing the renewables and cogeneration from suppliers and its distribution to eligible producers,* analysing the electricity market and recommending measures for its improvement. The company is financed according to the Decision on fee for electricity market organization (Official Gazette 94/2007). The fee is determined by the Croatian Government at the proposal of the Ministry of Economy, Labour and Entrepreneurship.

competences of the energy, construction, physical planning, water management, forestry, state property management, etc.

For the construction of a plant generating electricity from renewable energy sources it is necessary to obtain several documents. Prior approval for the construction of a generation facility and decisions on the eligible producer status granting and the contract on purchasing of electricity is resolved through adoption of the remaining two implementing regulations pursuant to the Energy Act and the Electricity Market Act (Ordinance on the Usage of Renewable Energy Sources and Cogeneration, OG 67/07, and Ordinance on the Obtaining of the Eligible Electricity Producer Status, OG 67/07).

The status of eligible producer secures the purchasing of the total electricity produced (Article 8 of the Electricity Market Act), i.e. the Transmission System Operator or the Distribution System Operator is obliged to ensure purchasing of the total electricity produced from eligible producers as provided for in the prescribed conditions.

Rules on costs and fees for connection to the grid and reinforcements are published in the form of the Ordinance on the Amount of the Fee for the Connection to the Power Line and for the Increase in Terminal Load (OG 28/06) and the Decision on the Amount of the Fee for the Connection to the Power Line and for the Increase in Terminal Load (OG 52/06).

As it could be understood from the description of RES and biogas legal framework, biogas is not described by legislation specifically but as one of the renewable energy sources. As such, it has special attention in feed-in tariff system only.

Apart of the legislative framework on RES, biogas is mentioned in several other legal documents.

The Regulation on Management of By-products of Animal Origin (OG 56/06) in Annex VI describes special conditions that an object for production of biogas and compost has to fulfil.

The Ordinance of Biofuels Quality (OG 141/05) recognises biogas as one type of motor vehicle fuel with prescribed properties if placed on market. The Law on Gas Market (OG 40/07) allows biogas injection into the gas grid if it is possible both technically and safe transport through the gas system of the gases in question. However, there are no necessary sublaws to implement it.

Furthermore, Waste Management Plan 2007-2015 (OG 85/07) that foresees Waste Management Centers (WMC) which will be located far from inhabited area and will provide place for several activities for waste handling prior to its final disposal. Among those activities there is “energy exploitation of certain fractions of waste” and is stated as one of main parts of WMC (zone for collection and utilization of biogas).

Nitrate directive is not transposed in the national legislation yet, although there are some indications that it could occur in the near future. So far, the amounts of animal manure to be disposed on the land are regulated by storage capacity in farms in conventional agriculture whereas the Law on Organic Agriculture adopts the maximum amount of 170 kg of nitrates per hectare.

4.2. Support Instruments

The Ordinance on Minimal Share of Electricity from Renewable Energy Sources and Co-generation which Production is Incentivized (OG 33/07) states, in article 4, that the minimal share of RES-E to be incentivized amounts 5.8% (excluding large hydro) in total electricity consumption by 2010. RES-E production could be incentivized if the producer has gained the status of eligible producer. The Tariff System for the Production of Electricity from Renewable Energy Sources and Cogeneration (OG 33/07) defines the right of eligible electricity producers to the incentive price (in the form of feed-in tariffs) of electricity paid by the Market Operator (HROTE) for the supply of electricity produced from renewable energy sources and cogeneration. The tariff system further defines the obligation of the Distribution System Operator and Transmission System Operator to ensure the purchasing of all electricity produced by eligible producers.

Table 1: Feed-in tariffs for electricity produced from RES in Croatia (HRK/kWh)

RES type	**≥1 MW**	**< 1 MW**
Small hydro	0.69	0.42-0.69 (depending on produced electricity)
Wind	0.64	0.65
Biomass	0.95-1.20 (varies on biomass type)	0.83-1.04 (varies on biomass type)
Geothermal	1.26	1.26
Biogas,	1.20	1.04
Power plants on liquid biofuels	0.36	0.36
Landfill gas	0.36	0.36
Wave, tidal	0.60	0.50
Solar PV <10 kW 10-30 kW >30 kW	3.40 3.00 2.10	

The given amounts of feed-in tariff are to be multiplied by correction factor that depends on the share of domestic component of the project. The variation is between 100% for more than 70% share of domestic component to 93% for less than 45% share of domestic component. The share of domestic component is determined by the Ministry.

The amounts of the feed-in tariff for each designated renewable energy source are to be updated for retail consumer prices index for the current year. Apart of the gains from the feed-in tariff, the same Ordinance prescribes fee for the producer to be paid to the local community for all plants that have installed capacity larger than 1 MW in amount of 0.01

HRK/kWh (the amount is to be corrected for retail consumer prices index for the current year).

Once gained the status of eligible producer allows signing the agreement between HROTE and producer of RES-E for the period of 12 years.

Other financial mechanisms for private investors in biogas are concentrated in two institutions: Croatian Bank for Reconstruction and Development (HBOR) and Environmental Protection and Energy Efficiency Fund (FZOEU - Fond za zaštitu okoliša i energetsku učinkovitost).

HBOR is currently offering two products related to renewable energy sources utilisation:

1) Loan Programme for the Financing of Projects of Environmental Protection, Energy Efficiency and Renewable Energy Resources
2) Loan Programme for the Preparation of Renewable Energy Resources Projects

Loan Programme for the Financing of Projects of Environmental Protection, Energy Efficiency and Renewable Energy Resources is designated to units of local and regional self-government: municipalities, cities, counties and the City of Zagreb, if they comply with existing legal regulation. Acceptable borrowers can also be utility companies and other legal entities or natural persons that have entered into an agreement with HBOR on the implementation of the Loan Programme. The goal and the purpose of the loan should be at least one of the following: improving waste dumping sites, encouraging the prevention and reduction of waste generation, managing and recycling waste, and reducing the loss of valuable waste components, encouraging clean production, preventing or reducing waste generation, and minimising emissions in the manufacturing process, protecting and preserving biological and landscape diversity, implementing national energy programmes, encouraging the use of renewable energy resources (sun, wind, biomass, etc.) encouraging sustainable construction, encouraging cleaner transport technologies, promoting other projects of environmental protection, energy efficiency and renewable energy resources.

Loans are intended for investments in fixed asset (initial funding, land plots, buildings, equipments) and devices and permanent current assets In general, HBOR will finance up to 75% of the estimated investment value, without VAT included with grace period up to 2 years and repayment period up to 12 years, including grace period. Interest rates differ from 4%p.a. for borrowers investing in a region of special state concern or the islands, borrower belonging to SMEs, borrower having proven their competitiveness by successful sales figures in domestic and/or foreign markets to 6% p.a. for all other borrowers or the interest rate may be agreed as 3-month EURIBOR+2%b.p. annually. If the Environmental Protection and Energy Efficiency Fund approve the interest subsidy, the above interest rate shall be reduced by 2% or by the amount of the approved subsidy.

The Loan Programme for the Preparation of Renewable Energy Resources Projects is part of the GEF/IBRD Trust Fund Grant (hereinafter: the Grant) to the Republic of Croatia for the implementation of the Renewable Energy Resources Project, published within the Decree on the Global Environmental Facility Trust Fund Grant Agreement between the Re-

public of Croatia and the International Bank for Reconstruction and Development for the renewable energy resources project (OG – International Agreements, No. 4/2006).

The basic goal of the Grant is to promote economically and ecologically sustainable renewable energy resources market in the Republic of Croatia and to create a stimulating environment for investments in projects of renewable energy resources utilisation.

Loans are granted for the preparation of renewable energy resources projects, including biomass, small hydroelectric plants (up to 10 MW), geothermal and solar energy (wind energy projects are not included into this Programme). The preparation of public and private sector projects will be financed out of loan funds. Loans are intended for the financing of preliminary design documents within the framework of renewable energy resources utilisation. Loan funds can be utilised for the financing of: on-site research activities, environmental impact studies, documentation for obtaining a location permit, final design, investment study, documentation for obtaining a construction permit other permits, decisions, consents and documentation in compliance with the provisions regulating the energy sector.

Up to 50% of total eligible costs of preliminary design documents, in general up to USD 150,000 may be financed with a 4% p.a. interest rate. Eligible as final borrowers are utility companies, companies, craftsmen, units of local and regional government and other legal entities. Bullet loan repayment is due 12 months after the expiry of the disbursement period or upon the financial completion of the project. The repayment amount is calculated in USD and collected in HRK equivalent amount calculated at the selling exchange rate of the Croatian National Bank on the date of payment.

Once per year, FZOEU calls for tenders for financing renewable energy sources projects for which national bodies and companies are eligible.

4.3. Market Reform & Investment Environment

Croatia is one of the Contracting Parties in the Energy Community Treaty (Athens memorandum) by which is obliged to liberalize energy market as well as to transpose EU directives on promotion of RES-E (2001/77/EC) and biofuels (2003/30/EC). Full liberalisation of electricity market will occur on 1st of July 2008. Croatian utility company (HEP) is a public company that has unbundled its energy activities but still dominates in the electricity market.

Given the interest by both domestic and foreign companies, investment environment is positive while the eligible producer status procedure is still to be improved in sense of transparency and duration. So far, none of the renewable energy plants have gained the status. Three existing RES-E plants (2 wind power plants and 1 landfill gas plants) are having a special agreement for electricity sales. Nevertheless, the improvements are expected to occur in the near future.

4.4. Comparison to EU policies

As a candidate country, Croatia is harmonizing national legislation with Acquis literary on daily basis. Table 2 provides findings from the *Report on the Implementation of the Acquis on Renewables in the Energy Community Contracting Parties* (EIHP, 2007).

Table 2: Adaptation of EU policies in Croatia

Implementation status of the Directive 2001/77/EC in Croatia				
National indicative targets	**Support schemes**	**Guarantee of origin**	**Administrative procedures**	**Grid system issues**
National targets set at 1.8% of the total electricity consumption for 2007 and 5.8% for 2010[10]	Feed-in tariffs for various RES defined	Regulation partly in place, full implementation expected in future	Authorisation procedures for new RES plants defined in accordance with overall legislation	TSO/DSO obliged to ensure purchasing of RES electricity Rules on connection costs defined

Implementation status of the Directive 2003/30/EC in Croatia			
National indicative targets	**Monitor the effect of the use of biofuels in diesel blends above 5% by non-adapted vehicles**	**Public information**	**Support measures**
Set at 5.75% by 2010	Regulation partly in place, needs to be completed	Measures will be defined	Not defined

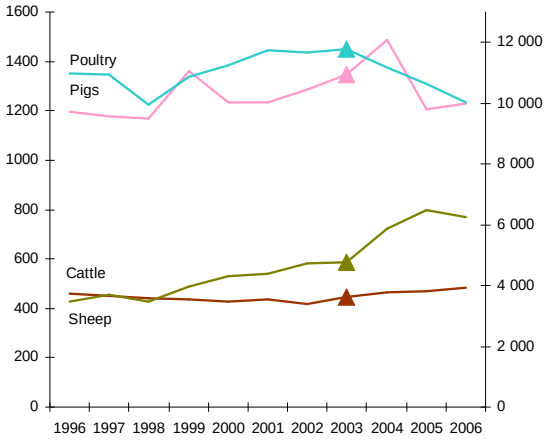
The Directive 2003/30/EC is partially transposed into the national legislation through the Energy Act (OG 66/2001, OG 177/2004, OG 76/07) and the Regulation on the quality of biofuels (OG 141/2005). The Directive will be aligned completely through the Biofuels Act in 2008.

5. Biogas contribution to national targets

In Croatia, biogas is the least explored renewable energy source as it greatly depends on the state of the art of the national agriculture. Croatian agriculture is still trying to grasp with market economy and war repercussions. In 1994, Croatia changed to net importing country of agricultural products. In 2003, Croatia was self-sufficient in 5 agricultural products only: wheat, sugar, maize, wine and eggs. The present ownership structure still largely reflects forty years long socialist system of government (dual system of large agrocombinates and marginalised family owned husbandries) and the application of lax inheritance laws. According to the Agricultural Census 2003, there are 448 532 family farms, utilizing

[10] Data on national targets are presented as stated in the Regulation on a minimum share of electricity produced from renewable energy sources and cogeneration in the electricity supply, OG 33/07, which exclude large hydro power plants. No other official data regarding national targets for RES electricity are currently available.

853 196 ha of arable land and gardens, corresponding to an average farm size of 2.0 ha. Same data shows that three quarters of all family farms are smaller than 3 ha, but cultivate only 21% of all utilised agricultural land owned by the private sector. Business entities use much larger areas of the agricultural land, averaging to 159.2 ha. Figures below demonstrate lack of sufficient knowledge of agrotechniques and strong dependency of agriculture yield on weather conditions. The diamonds in figures mark the year of agriculture census in 2003, the last official data available for agriculture on disaggregated level.



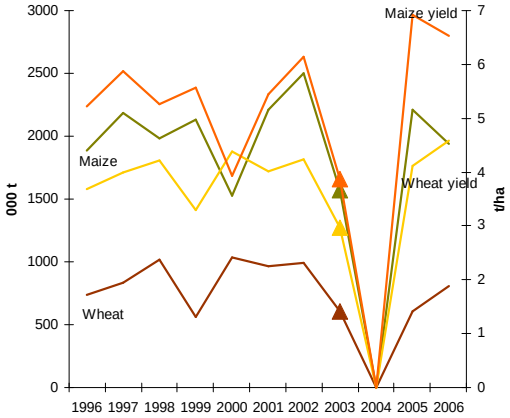


Figure 1: Livestock and poultry trends in Croatia (in 000)

Figure 2: Maize and wheat trends in Croatia

Source: Croatian Bureau of Statistics: Statistical Yearbook (2002-2007)

According to the CLC, there are 44 560 of milk suppliers out of which 96% has less than 15 milk cows. Majority of family farms (90.26%) keep less than 10 cattle, and only 9.74% more than 10. In order to change this unfavourable structure, Operational Programme for the Development of Livestock Production secures conditions for the establishment of new modern farms with the capacity of up to 100 cows. With the possibility of reaching higher competitiveness, such production units create a basis for meeting conditions set both in regard of environment as well as animal welfare. It is necessary to emphasise that some farmers will continue keeping a small number of animals on the farm. Specialized cattle breeding farms are not yet developed at a large scale. One third (32.4%) of the legal entities have up to 20 cows and two third (67.6%) of total 339 producers keep more than 20 cattle out of which 25.4% or 86 have more than 100 cattle.

In 2003, the average size of family holdings with pigs, or the average number of pigs per family holding, pursuant to the abovementioned data was 8 pigs, while the average number of pigs per legal entity was 464. In the producers structure the biggest limitation is the fact that 90% of production is represented by about 200 000 small producers. Less than 3 300 (1.5%) producers on family farms have more than 50 pigs. About 12 500 have 20 - 50 heads and out of this category of family farms it can be expected to grow up into commercial producers to some extent. From the category of family farms with 11 - 20 pigs can be divided farms ready to participate in commercial production, while the majority of more than 170 000 farms with less than 10 pigs are out of commercial production.

Continuing on the introduction from above, one could find estimates on biogas potential quoted from the official document (National Energy Programmes – BIOEN, 1998) as following: *Animal manure could deliver only a modest contribution to bioenergy in Croatia and cattle breeding have been on a steady decrease in the last years. A potential amount of biogas output has been calculated on the basis of the number of registered livestock as well as the average biogas yield per cattle unit both daily and annually. The actually exploitable part of the potential amount is estimated to be 20 percent of the total, due to a number of factors (dispersion of livestock, keeping small number of heads of cattle, keeping the cattle in the open), and it amounts to 2.0 PJ/year.*

About 800 thousand tones of biomass residues (energy potential of about 11.4 PJ/year) from agriculture are currently available, with wheat and corn being the major agricultural crops. Agricultural residues have a significant energy potential in both Eastern Croatia and coastal zone.

Apart of the quoted numbers, there has been little or no research devoted to investigate true biogas potentials with related locations.

6. Conclusions

Current RES-E legislation demonstrates difficulties in implementation but the responsible bodies are already engaged in improving it. In that sense, legislative framework for biogas and other RES penetration could be assessed as a temporary obstacle. Its removal would open the true development of the RES-E market due to the existing financial mechanisms both in shape of feed-in tariff system, loans and other supports.

Among RES, biogas especially suffers consequences of poor communication between different governmental bodies such as Ministry of Agriculture and Rural Development and Ministry of Economy, Labour and Entrepreneurship. Namely, biogas, as RES, is managed by Ministry of Economy from the point of energy utilisation while its feedstock originates from agriculture. On the other hand, bioenergy production from agricultural biomass is not incorporated in agriculture policy.

Difficulties in determining true biogas potential from publicly available data are focused in difference in data collection methodologies between the Croatian Bureau of Statistics and Eurostat. The only publicly available data that are linking agriculture production with corresponding locations in Croatia are from 2003. Unfortunately, those data are not updated today due to the pig plague in 2006 and 2007, avian flue alert in 2005-6 and failure of small-scale milk production farm project, together with constant problems of expensive and inefficient food production. In addition to that, ESRI data and maps for Croatia are not corresponding to the national NUTS administrative units adopted by Croatian Bureau of Statistics which make the data collection even more difficult.

Apart of the energy legislation, biogas utilisation is related to spatial planning too. In that aspect, it is necessary to include in spatial plans descriptions of what the spatial prerequisites are that a biogas plant has to fulfil in order to obtain location and building permit.

Apart of the “agricultural” biogas, landfill gas utilisation for electricity production indicates greater potential especially in the current time of implementation of new waste man-

agement strategy. Biogas is mentioned as one of the waste management techniques but without any further elaboration. In that respect, stakeholders in waste management, especially local authorities should be introduced to the possibilities of utilisation of biogas from landfill gas.

Biogas plants or, as stated in the Regulation on Handling the By-products of Animal Origin (OG 56/06), object for production of biogas and compost, are well described in the Regulation. It allows animal by-products of Category 2 and 3 (animal manure classified as Category 2) plus waste originated from catering sector and households sector to be used as feedstock if meeting the required legal conditions.

National target of 5.8% of RES-E in 2010 has been estimated as 1 100 GWh (Energy Institute Hrvoje Požar, 2008). Energy Institute Hrvoje Požar has made a rough cost-benefit analysis given the potential, development phase of each RES source, technology and energy sector capacities (utility system characteristics). The possible RES portfolio in 2010 mostly focuses on wind energy (750 GWh) while some 330 GWh should be covered by biomass due to the legal limit for solar of 1 MW of installed capacity, occupancy of potential sites for small hydropower plants and geothermal electricity projects status.

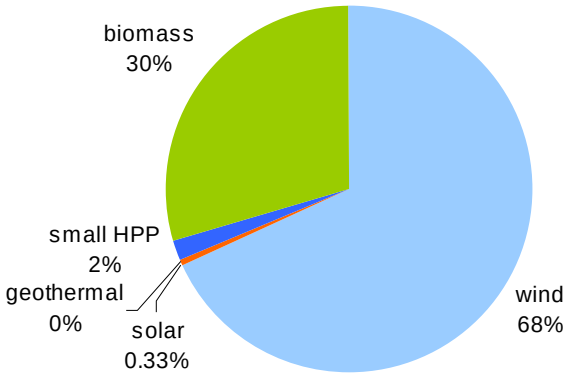


Figure 3: Projections for 2010 RES-E portfolio for Croatia

Source: Energy Institute Hrvoje Požar, 2008

It is still not clear how much biomass and what types of it would generate 30% of the portfolio although the spotlight is placed on cogenerations on wooden biomass (at least 85% of biomass electricity) although biogas could contribute to that aim, too.

In addition, biogas exploitation indicates promising contribution in Kyoto Protocol targets, if incorporated in new Programme for Cattle Breeding Development where stakeholders could be informed and educated how to incorporate biogas in their farm development structure.

Annex 1: EU Legislation and corresponding legal documents that are transposing *acquis* to the Croatian legislation either completely or partially or beyond the demands of the *acquis*

Directives

► DIRECTIVE **2000/76/EC**

"on the **incineration of waste**"

To prevent and limit negative environmental effects by emissions into air, soil, surface and ground-water, and the resulting risks to human health, from the incineration and co-incineration of waste.

- ***Pravilnik o načinima i uvjetima termičke obrade otpada (NN 45/07)***
  Regulation on ways and conditions for thermical waste processing (OG 45/07)

► DIRECTIVE **2001/77/EC**

„on the promotion of **electricity produced from renewable energy sources** in the internal electricity market"

The purpose of this Directive is to promote an increase in the contribution of renewable energy sources to electricity production in the internal market for electricity and to create a basis for a future Community framework thereof.

For the purposes of this Directive, the following definition applies: 'renewable energy sources' shall mean renewable non-fossil energy sources (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases);

- ***Tarifni sustav za proizvodnju električne energije iz obnovljivih izvora i kogeneracije (NN 33/07)***
  Tariff system for the production of electricity from renewable energy sources and cogeneration (OG 33/07)
- ***Uredba o naknadama za poticanje proizvodnje električne energije iz obnovljivih izvora energije i kogeneracije (OG 33/07)***
  Regulation on the fee for the promotion of the electricity production from renewable energy sources and cogeneration (OG 33/07)
- ***Pravilnik o korištenju obnovljivih izvora energije i kogeneracije (67/07)***
  Ordinance on the usage of renewable energy sources and cogeneration (OG 67/07)
- ***Uredba o minimalnom udjelu električne energije proizvedene iz obnovljivih izvora energije i kogeneracije čija se proizvodnja potiče (NN 33/07)***
  Regulation on a minimum share of electricity produced from renewable energy sources and cogeneration in the electricity supply (OG 33/07)
- ***Pravilnik o stjecanju povlaštenog proizvođača električne energije (NN 67/07)***
  Ordinance on the obtaining of the eligible electricity producer status (OG 67/07)

► DIRECTIVE **2001/80/EC**

"on the **limitation of emissions of certain pollutants** into the air from large combustion plants"

This Directive shall apply to combustion plants, the rated thermal input of which is equal to or greater than 50 MW, irrespective of the type of fuel used (solid, liquid or gaseous).

- ***Uredba o graničnim vrijednostima emisija onečišćujućih tvari u zrak iz stacionarnih izvora (NN 21/07)***
  Ordinance on limitations of air pollutants emissions from stationary sources (OG 21/07)

► DIRECTIVE **2002/91/EC**

„on the **energy performance of buildings**"

The objective of this Directive is to promote the improvement of the energy performance of buildings within the Community, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness.

Article 5 of the Directive is related to new buildings and is relevant to the use of biogas since Member States shall take the necessary measures to ensure that new buildings meet the minimum energy performance requirements referred to in Article 4. For new buildings with a total useful floor area over 1 000 m^2, Member States shall ensure that the technical, environmental and economic feasibility of alternative systems such as:

- decentralised energy supply systems based on renewable energy,
- CHP,
- district or block heating or cooling, if available,
- heat pumps, under certain conditions,

is considered and is taken into account before construction starts.

- ***Tehnički propis o uštedi toplinske energije i toplinskoj zaštiti u zgradama (NN 79/05)***
  Technical regulations on heat energy savings and thermal protection in buildings (OG 79/05)
- ***Zakon o prostornom uređenju i gradnji (NN 76/07)***
  Law on physical planning and construction (OG 76/07)

► DIRECTIVE **2003/30/EC**

„on the promotion of the use of **biofuels** or other renewable fuels for transport"

This Directive aims at promoting the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes in each Member State, with a view to contributing to objectives such as meeting climate change commitments, environmentally friendly security of supply and promoting renewable energy sources.

Upgraded biogas (biomethane) can be used as renewable transport fuel. For the purpose of this Directive, the following definitions are related to the biogas sector:

- 'biofuels' means liquid or gaseous fuel for transport produced from biomass;

- 'biomass' means the biodegradable fraction of products, waste and residues from agriculture (including vegetal and animal substances), forestry and related industries, as well as the biodegradable fraction of industrial and municipal waste;
- 'biogas': a fuel gas produced from biomass and/or from the biodegradable fraction of waste, that can be purified to natural gas quality, to be used as biofuel, or woodgas;

- ***Uredba o kakvoći biogoriva (NN 141/05)***
  Ordinance of Biofuels Quality (OG 141/05)

► DIRECTIVE **2003/55/EC**

"concerning common rules for the **internal market in natural gas** and repealing Directive 98/30/EC"

This Directive establishes common rules for the transmission, distribution, supply and storage of natural gas. It lays down the rules relating to the organisation and functioning of the natural gas sector, access to the market, the criteria and procedures applicable to the granting of authorisations for transmission, distribution, supply and storage of natural gas and the operation of systems.
The rules established by this Directive for natural gas, including liquefied natural gas (LNG), also applies to biogas and gas from biomass or other types of gas in so far as such gases can technically and safely be injected into, and transported through, the natural gas system.
Since this directive was introduced, biogas industry has been working to obtain a priority for biogas feed-in into the pipeline system, analogous to EEG in Germany. In Germany it is possible to feed biogas into the natural gas system.

- ***Zakon o tržištu plina (NN 40/07)***
  Law on Gas Market (OG 40/07)

► DIRECTIVE **2003/87/EC**

„establishing a scheme for **greenhouse gas emission allowance trading** within the Community and amending Council Directive 96/61/EC"

This Directive establishes a scheme for greenhouse gas emission allowance trading within the Community (hereinafter referred to as the 'Community scheme') in order to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner.

► DIRECTIVE **2004/8/EC**

„on the promotion of **cogeneration** amending Directive 92/42/EEC"

The purpose of this Directive is to increase energy efficiency and improve security of supply by creating a framework for promotion and development of high efficiency cogeneration of heat and power based on useful heat demand and primary energy savings in the internal energy market, taking into account the specific national circumstances especially concerning climatic and economic conditions.
Cogeneration technologies covered by this Directive are

(a) Combined cycle gas turbine with heat recovery

(b) Steam backpressure turbine
(c) Steam condensing extraction turbine
(d) Gas turbine with heat recovery
(e) Internal combustion engine
(f) Microturbines
(g) Stirling engines
(h) Fuel cells
(i) Steam engines
(j) Organic Rankine cycles
(k) Any other type of technology or combination thereof falling under the definition laid down in Article 3(a)

- ***Pravilnik o korištenju obnovljivih izvora energije i kogeneracije (67/07)***
  Ordinance on the usage of renewable energy sources and cogeneration (OG 67/07)
- ***Tarifni sustav za proizvodnju električne energije iz obnovljivih izvora i kogeneracije (NN 33/07)***
  Tariff system for the production of electricity from renewable energy sources and cogeneration (OG 33/07)
- ***Uredba o naknadama za poticanje proizvodnje električne energije iz obnovljivih izvora energije i kogeneracije (OG 33/07)***
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- ***Pravilnik o stjecanju povlaštenog proizvođača električne energije (NN 67/07)***
  Ordinance on the obtaining of the eligible electricity producer status (OG 67/07)

► DIRECTIVE **2006/12/EC**

„on **waste**“

For the purposes of this Directive ‘waste’ shall mean any substance or object in the categories set out in Annex I of this directive (e.g. industrial waste, agricultural waste, waste from households, etc.) which the holder discards or intends or is required to discard. However, gaseous effluents emitted into the atmosphere, animal carcases and the following agricultural waste (faecal matter and other natural, non dangerous substances used in farming) and waste waters, with the exception of waste in liquid form are excluded from this directive since these materials are covered by other directives.

The directive requests Member States to take appropriate measures to encourage the prevention or reduction of waste production and its harmfulness, in particular by:

(i) the development of clean technologies more sparing in their use of natural resources;

(ii) the technical development and marketing of products designed so as to make no contribution or to make the smallest possible contribution, by the nature of their manufacture, use or disposal, to increasing the amount or harmfulness of waste and pollution hazards;

(iii) the development of appropriate techniques for the final disposal of dangerous substances contained in waste destined for recovery;

It also requests Member States to take appropriate measures to encourage

(i) the recovery of waste by means of recycling, reuse or reclamation or any other process with a view to extracting secondary raw materials; or

(ii) the use of waste as a source of energy.

- ***Zakon o otpadu (NN 178/04, 111/06, 110/07, 60/08)***
  Law on Waste (OG 178/04, 111/06, 110/07, 60/08)

► COUNCIL DIRECTIVE **86/278/EEC**

"on the protection of the environment, and in particular of the soil, when **sewage sludge** is used in agriculture"

The purpose of this Directive is to regulate the use of sewage sludge in agriculture in such a way as to prevent harmful effects on soil, vegetation, animals and man, thereby encouraging the correct use of such sewage sludge.

- ***Pravilnik o gospodarenju muljem iu uređaja za pročišćivanje otpadnih voda kada se mulj koristi u poljoprivredi (NN 38/08)***
  Regulation on management of sludge from waste water treatment facilities when the sludge is used in agriculture (OG 38/08)
- ***Pravilnik o zaštiti poljoprivrednog zemljišta od onečišćenja štetnim tvarima (NN 15/92)***
  Regulation on protection of agricultural land against pollution of various matters (OG 15/92)

► COUNCIL DIRECTIVE **91/676/EEC**

„concerning the protection of waters against pollution caused by **nitrates** from agricultural sources"

This Directive has the objective to reduce water pollution caused or induced by nitrates from agricultural sources and to prevent further such pollution.

With the aim of providing for all waters a general level of protection against pollution, Member States shall, within a two-year period following the notification of this Directive: (a) establish a code or codes of good agricultural practice, to be implemented by farmers on a voluntary basis, which should contain provisions covering at least the items mentioned in Annex II A of the Directive, and (b) set up where necessary a programme, including the provision of training and information for farmers, promoting the application of the code(s) of good agricultural practice.

Furthermore, Member States shall submit to the Commission details of their codes of good agricultural practice and the Commission shall include information on these codes in the report referred to in Article 11. In the light of the information received, the Commission may, if it considers it necessary, make appropriate proposals to the Council.

- ***Pravilnik o dobroj poljoprivrednoj praksi o korištenju gnojiva (NN 56/08)***
  Regulation on good agricultural practice on manure utilisation (OG 56/08)

► COUNCIL DIRECTIVE **96/61/EC**

"concerning **integrated pollution prevention and control**"

The purpose of this Directive is to achieve integrated prevention and control of pollution arising from the activities listed in Annex I. It lays down measures designed to prevent or, where that is not practicable, to reduce emissions in the air, water and land from the abovementioned activities, including measures concerning waste, in order to achieve a high level of protection of the environment taken as a whole, without prejudice to Directive 85/337/EEC and other relevant Community provisions.

- ***Zakon o zaštiti okoliša (NN 110/07)***
  Law on environmental protection (OG 110/07)

► COUNCIL DIRECTIVE **1999/31/EC**

"on the **landfill** of waste"

The EU Landfill Directive represents a step change in the way we dispose of waste in this country and sets demanding targets to reduce the amount of biodegradable municipal waste that is landfilled. These targets are:

- By 2010 to reduce biodegradable municpal waste landfilled to 75% of that produced in 1995
- By 2013 to reduce biodegradable municipal waste landfilled to 50% of the produced in 1995
- By 2020 to reduce biodegradable municipal waste landfilled to 35% of that produced in 1995.

- ***Pravilnik o načinima i uvjetima odlaganja otpada, kategorijama i uvjetima rada za odlagališta otpada (NN 117/07)***
  Regulation on ways and conditions of waste disposal, categories and working conditions for landfills (OF 117/07(
- ***Plan gospordarenja otpadom u Republici Hrvatskoj u periodu od 2007. do 2015. godine (NN 85/07)***
  Waste Management Plan 2007-2015 (OG 85/07)

<u>Regulations</u>

► REGULATION **(EC) No 1774/2002**

"laying down **health rules concerning animal by-products** not intended for human consumption"

This Regulation lays down animal and public health rules for (a) the collection, transport, storage, handling, processing and use or disposal of animal by-products, to prevent these products from presenting a risk to animal or public health, and (b) the placing on the market and, in certain specific cases, the export and transit of animal by-products and those products derived therefrom referred to in Annexes VII and VIII of the Regulation.

This Regulation also includes catering waste if it is destined for use in a biogas plant or for composting. It was amended by several new Commission Regulations including also issues on biogas:

- COMMISSION REGULATION (EC) No 808/2003

- COMMISSION REGULATION (EC) No 668/2004
- COMMISSION REGULATION (EC) No 92/2005
- COMMISSION REGULATION (EC) No 93/2005
- COMMISSION REGULATION (EC) No 416/2005
- COMMISSION REGULATION (EC) No 181/2006
- COMMISSION REGULATION (EC) No 208/2006
- COMMISSION REGULATION (EC) No 2007/2006

- ***Pravilnik o načinu postupanja s nusproizvodima životinjskog podrijetla koji nisu za prehranu ljudi (NN 56/06)***
  Ordinance on ways of handling of the by-products of animal origin not intended for human consumption (OG 56/06)

► REGULATION **(EC) No 2003/2003**

"relating to **fertilizers**"

This Regulation shall apply to products which are placed on the market as fertilisers designated 'EC fertiliser'. This includes only mineral and synthetic fertilizers and does not cover fertilizers from anaerobic fermentation residues.

- ***Zakon o gnojivima i poboljšivačima tla (NN163/03, 18/07)***
  Law on ferilizers and soil enhancers (OG 163/03, 18/07)