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Major Issues of a General (i.e. not IPPC-specific) RIA Methodology

Definitions and Concepts

RIA is a fact based analysis which is used as a systematic decision tool in public administrations in order to examine and measure the likely

- benefits,
- costs,
- risks,
- competition effects,
- distributional effects

of new or existing regulation.

RIA is a tool of regulatory management. RIA

- supports the process of policy providing by empirical data
- considers potential economic impacts of regulatory proposals
- assists governments to make their policies more efficient
- improves regulatory quality
- supports ongoing regulatory policy
- facilitates deregulation campaigns,
- supports legal harmonization with the European Union.

RIAs not only define Policy Options, but frequently also describe so-called Scenarios, each Scenario being associated with a particular Policy Option. The so-called Baseline Scenario belongs to the hypothetical Policy Option according to which the investigated regulation is not introduced. Options may differ

- by ambition levels, i.e. to what extent the environmental aims are satisfied
- or by facilitation levels, i.e. to what extent the affected companies are helped in form of long transition periods, administrative simplifications or financial support.

While most RIA studies are detailed or so-called “Full RIA Studies”, in various governments and international organizations methodologies have been elaborated for “Initial RIA” and “Preliminary RIA”. These RIA studies are quick, cheap, less detailed assessments of expected regulatory impacts.

RIA Institutionalization

OECD has established 10 Principles on “Introducing effective RIA”:

- Maximize political commitment to RIA.
- Allocate responsibilities for RIA programme elements carefully
- Train the regulators
- Use a consistent but flexible analytical method.
- Develop and implement data collection strategies.
- Target RIA efforts
- Integrate RIA with the policy-making process, beginning as early as possible.
- Communicate the results
- Involve the public extensively
- Apply RIA to existing as well as new regulation

Phases of RIA research

RIA preparation always begins with legal and institutional analysis.

It continues with

- the clarification of strategy / policy issues
- the clarification of the relevance of the regulation
- data collection
- the analysis of the expected impacts

Desk research type data collection consists of the following items:

- Laws, regulations
- Description of activity the relevant national and international institutions
- Official Statistics (environment, production, trade, consumption, accidents, etc.)
- RIAs made on the same directive for other countries (for EU MSs and for the whole EU)
- Relevant project and programme documents.
- Description of activity of companies, sectoral organizations, chambers and associations.

Field work type data collection consists of the following items:

- Interviews made with institutional stakeholders on the enforcement aspects of the regulation
- Interviews made with companies
- Questionnaire based surveys (business surveys) collecting responses from affected companies on their adaptation to change of regulatory environment
- Consultations (Round Tables) made with companies and other stakeholders affected by the planned regulation.

The analysis of the collected data serves the aim of highlighting impacts. It may consist of

- Qualitative steps such as comparison of countries and regulations, generalisation from a limited set of interviews, etc.
- Quantitative steps, such as statistical analysis of incoming questionnaires and econometric analysis based on official capacity, production and emission statistics, etc.

Turkish Guideline on Regulatory Impact Assessment

Turkey has institutionalized an elaborate system of RIA, with a regulation on RIA¹ and the Prime Minister's Office and various line ministries as the driving forces of RIA activity.

This Guideline is general in the sense that it can be applied for any policy area, including trade policy, labor policy and of course environment protection policy.

According to the 2006 By-law, RIA studies should include:

- Justification of drafting the legislation.
- Benefit-cost analysis, cost-effectiveness analysis, impacts on the budget.
- Assessment of necessity for creating a new agency or institution development.
- Analysis of impact on economy, business, social life, environment and administrative procedures / bureaucracy.
- Results of stakeholder consultation.
- Feasibility of the proposed legislation.

¹ 2006 By-Law on "Principles and Procedures of Drafting Legislation"

The Circular of the Prime Minister of 2007 on RIA ² contains a 10 page Guideline on Regulatory Impact Assessment. Accordingly RIA studies should have the following structure:

Chapter (0) *Brief Summary*. Contents:

- A brief description of the problem to be solved
- Main objectives of the planned measure
- Summary of options
- Achieved results.

Chapter (1) *Administrative Procedure of the RIA Project*. This Chapter outlines the following issues:

- The procedure followed in the RIA process and timeline
- Consulted institutions, organizations, and other partners.
- Comments received on-the overall structure of RIA report

Chapter (2) *Problem Definition*. This Chapter consists of the answers given to the following questions:

- What is the problem that needs to be resolved?
- What are the main causes of the problem?
- Who are the affected groups, and the rate and intensity are affected by the way in which affected?
- How will the planned measures improve the current situation?
- Are there any problems with the existing government policies and regulations related to the field?
- In order to solve the problem, intervention at what level is necessary: at the central level and/or at the local level?

Chapter (3) *Objectives*. This Chapter consists of the answers given to the following questions:

- What are the general policy objectives?
- What are the specific policy objectives?
- Are the specific policy objectives compatible with the general strategy of the government?

Chapter (4) *Alternative solutions / Options*. This Chapter consists of the answers given to the following questions:

- What are the possible options for solving the problem identified? (Regulatory and non-regulatory options included)
- Which of the above options can be excluded without further investigation? (E.g. due to inefficiency or due to incompatibility with other policies and strategies, etc.)

Chapter (5) *Analysis of Impacts*. This is the most important Chapter. It consists of the answers given to the following questions:

- Which social groups, economic sectors or regions will be affected by this arrangement?
- What are the positive / negative, direct / indirect effects?
- What uncertainties are included in the data and parameters?
- How do these uncertainties affect the estimated impacts?
- What effects will change over time and how?

The Guideline also specifies the types of impacts to be assessed and also the main stakeholders for whom these impacts should be possibly identified by the RIA. If possible, all impacts, such as benefits, costs and risks should be quantified, monetized and measured on an annual basis. Increasing or decreasing risks for any stakeholders (e.g. companies or citizens) should be

² Genelge 2007/6, Düzenleyici Etki Analizi Çalışmaları. The circular was signed by Prime Minister Recep Tayyip Erdoğan.

considered. The main stakeholders for whom / for which the impacts should be assessed / considered, are the State, the economy as a whole, businesses, the society as a whole, various social strata and the environment, including air, water and soil pollution, land use change, biodiversity loss and the potential impact on climate change.

Chapter (6) *Comparison of the options*. This Chapter consists of the answers given to the following questions:

- For each of the options: what is the balance of negative and positive effects?
- Evaluation: What are the consequences?
- For each of the options: what conflicts and synergies are involved?
- If possible evaluate every option according to previously defined evaluation criteria.
- What should be the preferred option?

Chapter (7) *Implementation, Monitoring and Evaluation*. This Chapter consists of the answers given to the following questions:

- What are the basic conditions of achieving the objectives identified?
- Is it possible / is it necessary to control and evaluate the implementation of the regulation in a broad and comprehensive program?
- Which administrative unit will be responsible for the implementation of the Regulation?
- How will the affected stakeholders receive information about the regulation?
- What are the penalties applicable to infringements of the rules?
- Is there a specified time period after which the regulation will be reviewed? Is such a review planned?

Major Issues of an IPPC-specific RIA Methodology

Cost assessment of introducing IPPC / IED

Regarding the methodology, one must distinguish between

- Chapter (5) of the Turkish Guideline of RIA (i.e. *Analysis of Impacts*) on the one hand
- and all other Chapters of the Turkish Guideline of RIA on the other hand.

The reason of this distinction is as follows: In case of fighting industrial pollution,

- the methodology of Chapter (5) is specific to the investigated policy area, i.e. the prevention and control of industrial pollution,
- while the methodology of all other Chapters is identical with that of RIA studies performed in case of other policy areas.

The cost values delivered by RIAs should be interpreted with a high error margin. (See *Annex I – Dealing with uncertainty in cost-benefit estimations of RIA studies.*) However, cost assessments should deliver the magnitudes of expected costs and benefits.

There are two broad methods employed to estimate compliance costs in case of pollution prevention and control regulations.

The bottom to top (“bottom-up”) approach

This consists in an extrapolation of costs and benefits based on collected data through surveys and general cost references. The partial database thus established is then extrapolated to the whole of the Industrial sector concerned. The bottom to top approach is generally employed when

- 1) there are sufficient resources to implement an IPPC RIA-specific business survey in the investigated country or
- 2) when there is a previously established data base of environmental expenditures available, (which in turn also originates from a business survey as part of Structural Business Statistics) or
- 3) when there is an analogous data base available which originates in business survey made in another country.

In the first case the Questionnaire of the business survey tackles the following issues:

- the present level of preparedness of affected companies
- expected investment costs and costs of ongoing compliance, e.g. administrative costs
- expected benefits, e.g. due to opening up new markets, due to reducing risks or due to reducing material costs by reducing waste.
- company attitudes to compliance.

Sampling method: due to limits of resources, the IPPC / IED Impact Assessment Surveys cover from 50 to 500 installations in a few selected sectors and provinces. These installations should represent several thousands of installations that exist in the investigated country. The sectors and provinces targeted by the surveys are selected according to their relevance and sensitivity to the investigated regulation.

The cost parameter collected by the interviewers is an important indicator, e.g. it can be the cumulative expenditures attributed to IPPC over 5 or 10 years following the introduction of the regulation.

The second case: Data bases on environmental expenditures of companies may serve as the basis of detailed investment behavior of firms, and investment activities attributable to regulations may be

highlighted. The following costs are usually distinguished in such analyses:

- operating expenses (e.g. monitoring, external consultant's fees and costs associated by using less polluting input materials) and
- capital investment into pollution control equipment.

In such cases the database may contain data of several thousand of companies. Researchers may build regression models where the aim is to explain patterns of environmental expenditures with the help of a wide set of explanatory and control variables. The latter variables are e.g. company turnover, exports, purchases, fuel consumption, additions to capital assets, sales of capital assets, indirect taxes, employment, etc.

In the third case, i.e. in case of cost estimation based on foreign cost data, the basis of the estimation is a foreign IPPC impact assessment survey and the questions and indicators cannot be changed subsequently. In such cases the algorithm of cost assessment for the investigated country (e.g. Turkey) consists of multiplying the per-installation adaptation costs calculated in the other country (e.g. Spain) by the number of installations in the investigated country (e.g. Turkey), and repeating this for each of the thirty two IPPC categories. This estimation method relies on the assumptions that:

- The foreign cost data are reliable
- The adaptation costs for an average IPPC installation are comparable in the two countries
- The proportion of large installations within „IPPIC Annex I categories” is similar in the two countries.

The opinion of stakeholders additionally can be collected via

- IPPC / IED website
- Circulation of the Draft RIA and encouraging stakeholders to comment
- Collecting stakeholder opinions at workshops

The top to bottom (“top-down”) approach

This is a macro-econometric analysis. In this case the costs and benefits are estimated on the basis of the type and quantity of pollutants to be removed and populations to be served by using the unit costs of new or improved standards (e.g. retrofitting of industrial installations). Unit costs are taken from domestic and international references, from professional literature. The top to bottom, macro-econometric approach is employed when there are no resources available to implement a business survey, or when directives evaluated are complex, have a wide reaching impact and, especially, affect the population significantly and must be timed so as not to exceed affordability thresholds.

The evaluation of costs is based on the existing budgets of various institutions, official statistics of environment protection. Affordability calculation relies on the financial and economic capacities of the investigated country.

Calculating and monetizing benefits

The introduction of IPPC/IED will have a considerable positive impact due to avoiding certain damages to health, the ecosystem, to the society and to the environment protection sector of the economy.

The calculation of benefits follows a “causal chain” logic, also called “impact pathway” logic. In some research approaches in the last step of this calculation the benefits are monetised, e.g. in the following way:

- the reduction of pollution is calculated
- and the resulting difference is converted into reduced damage (e.g. damage to health or to crops or to biodiversity or to buildings)

- and subsequently the reduced damage is converted into the reduction of costs (i.e. expressed in money terms).

The above valuation underlies certain assumptions, which are clarified in the professional literature.

Observed benefits, i.e. reduced pollution may be compared with hypothetical benefits of the counterfactual scenario, i.e. by addressing the question of “what would have happened with the pollution if the regulation had not been issued”. The data base of such inference is the pollution inventory of the particular country or that of the EU. Pollution inventories are big data bases: studies based on the European Pollutant Release and Transfer Register (E-PRTR) may rely on yearly pollution reports of more than 10.000 industrial installations.

The extent of the benefits can be calculated via complex modeling exercises, e.g. with the help of the RAINs Model, used by the Thematic Strategy on air Pollution and the so-called café (Cleaner Air for Europe) Programme. The impacts of environmental regulations on competitiveness and employment are sometimes assessed by using General Equilibrium Models of EU economy. For more details see Annex 1 of the IPPC RIA Study.

Methodological recommendations of the IPPC / IED RIA Study for Turkey

- Turkey should support research on country level air pollution modeling and apply its findings in policy making.
- Turkey should contribute to EU wide impact assessment efforts by strengthening co-operation with the European Environment Agency and by supplying statistical data.
- Turkey should develop (a) its installation-level pollution inventory and (b) a business survey of environmental expenditures as part of Structural Business Statistics, according to European standards. The resulting data bases should be available for the public, and its use by researchers should be encouraged and motivated.
- In issues of how of technology interacts with the environment, impact assessment findings made in one country can be readily transferred to others. Therefore Turkey should participate on international forums where impact assessment methods and findings are exchanged.

The Reporting Period has been a period of consolidation during which reports and outputs were discussed between Project Implementation Unit (PIU) and Technical Assistance Team (TAT) and moved steadily towards finalisation. Outputs from Activities No. 1 and 3 of the Project were further discussed, revised and re- submitted or are planned to be re-submitted shortly to PIU for approval. The main output from Activity No 2 has been extensively commented and is currently under revision. The training under Activity 4 has commenced and the training under Activity 5 is planned to start in November. There was close cooperation between the TAT and PIU throughout the Period. Close cooperation with the Twinning Component (TW) was also maintained until its closure in early July.

Annex I – Dealing with Uncertainty in Cost-Benefit Estimations of RIA Studies

The Challenge

Analyses as complex as RIAs have to cope with various types of uncertainties³. These uncertainties can be classified as

- Limitations to obtain data,
- statistical uncertainty of existing data,
- parameter limitations (e.g. lack of studies to quantify the environmental or health effects of pollution reduction)
- and uncertainties originating from applying a particular calculation model which can be sufficiently or insufficiently sophisticated to correspond to the realities.

Uncertainty is inevitable in estimating the economic impacts of regulations. The assessment of uncertainty is an extension to benefit–cost analysis. In carrying out analyses the estimation of benefits and costs of proposed regulations, analysts must frequently rely on inputs to those analyses that are more or less uncertain. Uncertainty can be due to a lack of data.

Uncertainties in underlying inputs are spreading and magnified through the procedure of the cost-benefit analysis, leading to uncertainty in ultimate benefit and cost estimates. However, despite such uncertainty, the most prominently displayed results in RIAs are typically single, apparently precise estimates of benefits, costs, and net benefits. This hides those uncertainties that are inherent in the calculation. The omission of considering uncertainties may potentially lead to wrong decisions when policy makers select one from several competing policy options.

Surveys implemented by OECD among countries applying RIA confirmed the following⁴. Even those countries with the most extensive experience in implementing RIA acknowledge that the proportion of RIA that manage fully to quantify benefits and costs, and produce a robust net present value result, remains relatively small. Little quantitative data appears to be available on the extent to which RIA succeed in quantifying costs and benefits overall. Due to data limitations, resource constraints and other factors, it is not possible to fully quantify and monetize benefits and costs.

Due to uncertainty and inadequate information, benefit/cost analysis is most useful if it makes the underlying assumptions and assessments explicit and is accompanied by sophisticated sensitivity analyses in relation to the major variables. Uncertainty/Sensitivity analysis is recommended by most methodologies. However, these analyses are often omitted or delegated to annexes, due to their technical nature.

In spite of these deficiencies, the RIA community generally accepts the benefit/cost principle as the core of RIA methodology, and the debate increasingly focuses on how effectively integrate quantitative and qualitative of analysis into an integrated whole which best supports policy decision-making
how to make cost-benefit analyses and their inherent uncertainties transparent and non-technical

³ The Clean Air Mercury Rule (CAMR): An Economist's Perspective. By Alan J. Krupnick. Chapter 7 of "Reforming Regulatory Impact Analysis". Edited by Winston Harrington, Lisa Heinzerling, and Richard D. Morgenstern. Washington, US, 2009.

⁴ Determinants of Quality in Regulatory Impact Analysis. In: Regulatory Impact Analysis: A Tool for Policy Coherence. Publication date: 11 Sept. 2009. OECD Regulatory Division Public Governance and Territorial Development Department. Source: www.oecd.org/gov/regulatory-policy/42047618.pdf

what alternatives to cost-benefit can be used, which still retain the quantitative nature of cost-benefit analysis.⁵

Examples of Uncertainties in Environmental RIAs

There could be many examples cited of estimations with high error margins from the professional literature. Here we only refer to some documents which have been analysed in Annex 1 of the IPPC RIA for Turkey.⁶

Ex-ante cost estimates are often considerably higher than the real costs of measures as evaluated ex-post. For example, the study performed by AEA Technology for the UK DEFRA in December 2004, clearly stated that the ex-ante costs of the UK National Air Quality Strategy were overestimated by up to a factor of five.⁷

The Impact Assessment of the Directive on “Ambient Air Quality and Cleaner Air for Europe”⁸ clearly admits in the chapter of “Health Impacts of air pollution, that the mortality impact of exposure to fine particles may be 2,5 times more or alternatively, 1,7 times less much than stated in the central estimate. However, according to this uncertainty analysis, the likelihood of deviating so much in either direction is less than 5%.

However, cost estimations can be biased also when applied for the past. In such cases significant variation of results may result from different two approaches to the identification of the value of statistical life (VSL). This is a monetary conversion parameter which is frequently applied to the change in number of deaths and in life expectancy in. An example for resulting uncertainties and error margins of ex post cost estimations is demonstrated in the EU Impact Assessment of the IED Directive (2007)⁹ Here it is stated that the pollutants covered by the Thematic Strategy on Air Pollution¹⁰ caused a total annual damage cost between €53-164 billion in 2004 in to human health impacts and crops in the 25 MSs of the EU. The lower limit is one-third of the upper limit.

⁵ See e.g. WHO Guide to Cost-Effectiveness Analysis. Making Choices in Health. Edited by T. Tan-Torres Edejer, R. Baltussen, T. Adam, R. Hutubessy, A. Acharya, D.B. Evans And C.J.L. Murray. Geneva 2003.

⁶ Regulatory Impact Assessment (RIA) of introducing the IPPC / IED Directive to Turkey. Technical Assistance Service for IPPC – Integrated Pollution Prevention And Control In Turkey. Project Identification No: EuropeAid/129470/D/SER/TR. Contract No: TR0802.04-02/001. Ankara, 2013.

⁷ See Page 60 of the following document: Impact Assessment. Annex to : The Communication on Thematic Strategy on Air Pollution and The Directive on “Ambient Air Quality and Cleaner Air for Europe” Commission Staff Working Paper. Brussels, 21 9.2005, SEC (2005) 1133, {COM(2005)446 final}, {COM(2005)447 final}

⁸ Page 60 of the above document.

⁹ See the following source: Impact Assessment. Accompanying document to the Proposal for a Directive of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) (recast). Brussels, 21.12.2007.

¹⁰ NH₃, NO_x, particulate matter, SO₂ and VOCs

Approaches to Deal With Uncertainty of Cost-Benefit Estimation in Public Administrations

EU

The central methodological document EU on impact assessment¹¹ contains various best practices on dealing with uncertainties.

The document defines sensitivity analysis as the method to explore how the impacts of the options we are analysing would change in response to variations in key parameters. For example, in case of environmental regulations, we might want to identify the impacts in terms of pollution reduction, which may be affected by (a) changes in the rate of economic growth and (b) by the proportion of producers who comply by the assessed regulation. These values are rarely known for sure, but there is often a range of values that is more or less likely.

Legislation can have an impact on health, either directly if changing health outcomes is a stated objective or indirectly as a result of tackling another, related issue. Health impacts are most commonly encountered in environmental protection, health care, product safety, safety at work, consumer protection etc. A distinction can be made between monetary and non-monetary methods. Non-monetary approaches are potentially less controversial and may be more suitable in a cost effectiveness analysis, whereas monetary approaches are needed if the aim is to present a comprehensive cost benefit analysis.

The document offers parameters for valuing health impacts. Placing monetary values on results obtained in natural units (e.g. number of lives saved, number of species protected, number of accidents avoided, etc.) can sometimes monetize non-monetary approaches. Research undertaken in the past has resulted in values of 1-2 million Euros for Value of Statistical Life and 50.000-100.000 Euros for Value of Life Year in Europe. According to this Guideline, these ranges should be used for the purpose of an Impact Assessment if no more context specific estimates are available.

United States

In the United States the Federal Government has outlined the methodology of Regulatory Analysis in Executive Order 12866 (The President's Executive Order 12866 of September 30, 1993). The treatment of uncertainties is described in Circular A-4 issued by the White House (September 17, 2003)¹². Accordingly, the precise consequences (in terms of benefits and costs) of regulatory options are not always known for certain, but the probability of their occurrence can often be developed. In certain cases uncertainty can be analysed quantitatively. e.g. by numerical sensitivity analysis. This method examines how the results of the Cost-benefit analysis vary with plausible changes in assumptions, choices of input data, and alternative analytical approaches. If such an analysis is feasible, RIAs should consider both the statistical variability of key elements underlying the estimates of benefits and costs¹³ and the incomplete knowledge about the relevant relationships.¹⁴

The accompanying methodological document¹⁵ again stresses that there are uncertainties in benefits, costs, and net benefits, because regulatory analysis requires forecasts about the future,

¹¹ European Commission: Impact Assessment Guidelines. 15 January 2009.

¹² http://www.whitehouse.gov/omb/Circulars_a004_a-4

¹³ For example, the expected change in the distribution of automobile accidents that might result from a change in automobile safety standards.

¹⁴ For example, the uncertain knowledge of how some economic activities might affect future climate change.

¹⁵ Regulatory Impact Analysis: A Primer.

Regulatory Impact Analysis: A Primer. Office of Information & Regulatory Affairs, Office of Management and Budget, August 15, 2011.

and what the future holds, both in the baseline and under the regulatory alternative under consideration, is typically not known for certain. This document recommends to present both a central “best estimate,” which reflects the expected value of the benefits and costs of the rule, as well as a description of the ranges of plausible values for benefits, costs, and net benefits, the extent of uncertainty associated with the regulatory decision. In developing an uncertainty analysis (sensitivity analysis) it is practical to identify ranges of plausible benefits, costs, and net benefits of each regulatory alternative, i.e. to give “high” and a “low” scenarios that provide plausible upper and lower bounds. When feasible, agencies should also assign probabilities to each of these scenarios.

As a response to the above cited Circular A-4, various attempts have been made to calculate the level of these uncertainties. In some cases simulation, i.e. the so-called Monte-Carlo method can be used to highlight to what extent the costs and benefits depend on the variability of input parameters.¹⁶

Australia

The Australian Government has also issued various methodological documents on RIA preparation, which tackle the issue of uncertainty of costs and benefit forecasting. A recent document¹⁷ states explicitly that it is difficult to predict what the effects of a regulatory proposal might be in 10 or 20 years' time or to attach objective probabilities to various scenarios. Additionally, there may be considerable uncertainty about predicted impacts and their appropriate monetary valuation. Costs and benefits can be difficult to value in dollars because their magnitude may be unknown or uncertain, or because even if their impact is known, they are difficult to express in money terms. Examples include environmental, social and cultural considerations, regional impacts, health and safety, publicity and national defense.

The document recommends to implement sensitivity analysis which should provide information about how changes in different variables will affect the overall costs and benefits of the regulatory proposal. Common approaches to sensitivity analysis include

- Worst/best case analysis
- Partial sensitivity analysis (i.e. the examination of how net benefits change as one variable varies over a plausible range, holding other variables constant)
- Monte Carlo sensitivity analysis (which creates a distribution of net benefits while varying key assumptions or parameter values according to a probability distribution)

If the sign of the net benefits does not change after considering the range of scenarios, the effects of the proposal can be forecasted with confidence.

Conclusions

Cost-benefit analysis should be regarded as a convenient conceptual framework of Regulatory Impact Assessment.

It should be applied in a quantitative manner as a calculation only if the available data and precision of underlying data allows it. Results of quantitative cost-benefit analyses should be treated as approximate forecasts which are accompanied with a great deal of estimation error and even bias. The extent of this bias should be assessed and stated wherever this is possible.

¹⁶ On the value of formal assessment of uncertainty in regulatory analysis. Judson Jaffe and Robert N. Stavins Analysis Group, Inc., Boston, MA, USA, and **John F. Kennedy School of Government, Harvard University, Cambridge, MA, USA. *Regulation & Governance* (2007) 1, 154–171.

¹⁷ Guidance Note: Cost-benefit analysis in Regulation Impact Assessment. Source: <http://www.finance.gov.au/obpr/cost-benefit-analysis.html>

If the cost-benefit analysis contains an error margin up to a factor of 2 or 3, it may be still used for policy planning purposes. However, for policy planning purposes, the estimation of the magnitude of impacts is important, i.e. if the estimations of costs or benefits are uncertain up to a factor of 10, it is useless.

In many cases the results of cost-benefit analysis are uncertain because the benefits of the assessed regulation (e.g. number of lives saved, or clean water, etc.) are monetized by using arbitrary and highly uncertain parameters, principles or models (e.g. that the value of Statistical Life is 1 to 2 million of EUR). In such cases the implementation of alternative quantitative models should be considered.

If quantitative cost-benefit analysis is not feasible, an analogous qualitative reasoning should be applied. In such cases only the approximate magnitudes of costs and benefits should be identified and compared by using case studies, anecdotal evidences, international and inter-sectoral analogues other sources of sound judgment, and by formulating qualitative statements on such knowledge.

Annex II – Guideline for preparing RIA

Circular of the Prime Minister of 2007 on RIA¹⁸ contains a 10 page Guideline on Regulatory Impact Assessment. The following structure is a strongly condensed description of the Guideline, with special respect to the “Regulatory Impact Analysis Report Format”¹⁹ as it is described in the Circular.

RIA Reports should be written in simple and understandable language, and normally should not exceed 30 pages. Additionally, all information annexes of the report and supporting documentation should be provided.

A RIA Report consists of the following Chapters:

Brief Summary

Contents:

- A brief description of the problem to be solved
- Main objectives of the planned measure
- Summary of options
- Achieved results.

Chapter 1. Administrative Procedure of the RIA Project.

Contents:

- The procedure followed in the RIA process and timeline
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Chapter 2. Problem Definition

This Chapter consists of the answers given to the following questions:

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- In order to solve the problem, intervention at what level is necessary: at the central level and/or at the local level?

Chapter 3. Objectives

This Chapter consists of the answers given to the following questions:

- What are the general policy objectives?
- What are the specific policy objectives?
- Are the specific policy objectives compatible with the general strategy of the government?

¹⁸ Genelge 2007/6, Düzenleyici Etki Analizi Çalışmaları. The circular was signed by Prime Minister RecepTayyip Erdoğan.

¹⁹ Düzenleyici Etki Analizi Raporu Formatı.

Chapter 4. Alternative solutions/Options

This Chapter consists of the answers given to the following questions:

- What are the possible options for solving the problem identified? (Regulatory and non-regulatory options included)
- Which of the above options can be excluded without further investigation? (E.g. due to inefficiency or due to incompatibility with other policies and strategies, etc.)

Chapter 5. Analysis of Impacts

This most important Chapter consists of the answers given to the following questions:

- Which social groups, economic sectors or regions will be affected by this arrangement?
- What are the positive/negative, direct/indirect effects?
- What are uncertainties included in the data and parameters?
- How do these uncertainties affect the estimated impacts?
- What effects will change over time and how?

The Guideline also specifies the types of impacts to be assessed and also the main stakeholders for whom these impacts should be possibly identified by the RIA.

Types of impacts to be identified: This Chapter aims to the determination of the costs and benefits arising from the proposed solution, and should determine the most appropriate and cost-saving option. It will not be possible to monetize all effects, but if possible, estimations, upper and lower bounds should be given. If possible, impacts/benefits/costs should be measured on an annual basis. Increasing or decreasing risks for any stakeholders (e.g. companies or citizens) should be considered.

Main stakeholders for which the impacts should be assessed/considered:

- Impacts on the State, on policies, on the administration: the respective policies should be considered in terms of enforcement/compliance, obstacles, including the risks and uncertainties. Impacts on the state budget.
- Impact on the economy as a whole, and on businesses should be assessed in terms of rising/decreasing input prices, production, transportation and marketing in the exchange, supply sources, risks. Effect on competition: companies obtaining or losing strong or dominant position as an effect of the regulation.
- Effect on society, on citizen as consumers and /or employees: on job security, unemployment, growth, health, safety and consumer rights, injury and disease, etc.
- Effects on the environment²⁰: Air, water and soil pollution, land use change, biodiversity loss and the potential impact on climate change.

Chapter 6. Comparison of the options

This Chapter consists of the answers given to the following questions:

- For each of the options: what is the balance of negative and positive effects?
- Evaluation What are the consequences?
- For each of the options: what conflicts and synergies are involved?
- If possible evaluate every option according to previously defined evaluation criteria.
- What should be the preferred option?

Chapter 7. Implementation, Monitoring and Evaluation

This Chapter consists of the answers given to the following questions:

- What are the basic conditions of achieving the objectives identified?

²⁰ In this methodology y the environment is not a stakeholder in the narrow sense. However, environment protection can be regarded as an activity benefiting the widest group of stakeholders: present and future generations.

- Is it possible/is it necessary to control and evaluate the implementation of the regulation in a broad and comprehensive program?
- Which administrative unit will be responsible for the implementation of the Regulation?
- How will the affected stakeholders receive information about the regulation?
- What are the penalties applicable to infringements of the rules?
- Is there a specified time period after which the regulation will be reviewed? Is such a review planned?

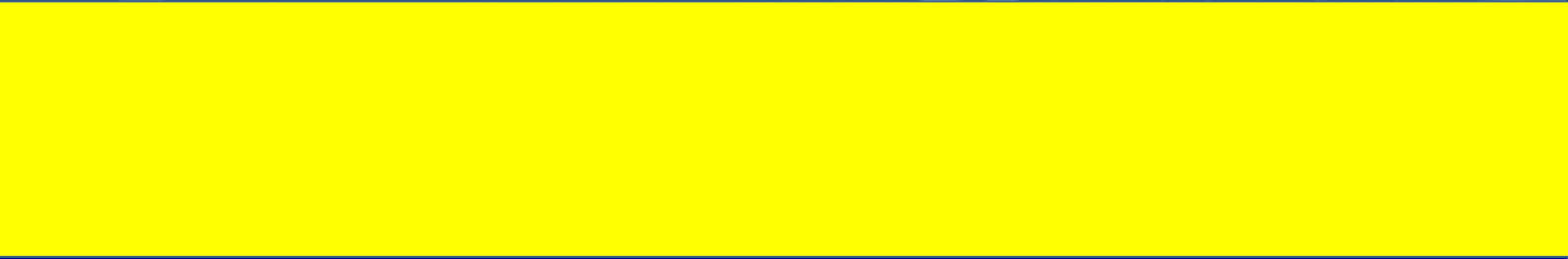
In other countries. RIA reports in the European Union generally follow the outline as given in a methodological recommendation document issued by the EU Commission²¹. This structure is freely combined with the structure as recommended by the OECD²². In the US economic analyses of environment protection measures follow the recommendations as given in a document issued by the US Environment Protection Agency²³.

The structure of the present RIA report follows the general structure as foreseen by the Turkish RIA Guideline of 2007.

²¹ See (a) "Impact Assessment Guidelines" European Commission, 15 January 2009. and (b) "Annexes to Impact Assessment Guidelines. European Commission , 15 January 2009.

²² See e.g. (a) „Introductory Handbook for Undertaking Regulatory Impact Analysis (RIA)”, OECD, Version 1.0 October 2008 (b) „The Evolution of Regulatory Policy in OECD Countries”, by Nick Malyshev OECD, 2005. (c) „Determinants of Quality in Regulatory Impact Analysis”. OECD Regulatory Division Public Governance and Territorial Development Department, 2006.

²³ "Guidelines for Preparing Economic Analyses". U.S. Environmental Protection Agency, National Center for Environmental Economics, Office of Policy, December 17, 2010.



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