

## **STEPS FOR COMPILING THE LAND IMPROVEMENT DESIGNING. CASE STUDY: TECHNICAL DOCUMENTATION FOR OBTAINING THE A.N.I.F. TIMIS AGENCY APPROVAL**

**George Narcis PELEA**

**Scientific coordinator: Prof.dr.ing. Eugen Teodor MAN**

University Politehnica of Timișoara, Faculty of Civil Engineering, Hydrotechnical Engineering  
Department G. Enescu Street No. 1A 300022 Timișoara, Timiș County  
e-mail: narcispelea@gmail.com

Corresponding author email: narcispelea@gmail.com

### **Abstract:**

*The paper aims presenting the main steps necessary for compiling the documentation for land improvement design. In the land improvement design are distinguished the following main steps: pre-feasibility study (P.F.S.), feasibility study (F.S.), technical design and execution details (P.T.+ D.E.), technical approval (D.T.), technical documentation for obtaining the construction permit (D.T.A.C.), technical expertise, documentation authorizing work intervention (D.A.L.I.). In the case study we will detail the content of a framework for obtaining the technical approval from A.N.I.F. Timis Agency for land improvement in the Western part of the country.*

**Key words:** approval, frame work content, land improvement.

### **INTRODUCTION**

Designing land improvement arrangements mainly aims at applying various techniques and agro-biological engineering for recovering of unproductive or less productive agricultural land, creating and maintaining a favorable ratio between water and air in soil, deficient or excess land moisture conservation and preventing erosion by water and wind.

This is achieved by irrigation works, drainage, dams, river courses facilities, soil erosion and improving improper soil physical and chemical properties.

The stages of land improvement design must comply with the law and its provisions, especially given the possibility of funding the works through the European Agricultural Fund for Rural Development (EAFRD) National Rural Development Programme (RDP) as Measure 125 -"Improving and developing

infrastructure related to the development and adaptation of agriculture and forestry" by O.U.A.I. or F.O.U.A.I.

### **STEPS FOR COMPILING THE LAND IMPROVEMENT DESIGNING**

Land improvement design must meet the design steps provided in Government Decision (GD) no. 28/2008 approving the content of the technical-economic framework for public investment and the structure and methodology of the general estimate for investment objectives and intervention works, namely the preparation of the following documents: pre-feasibility study, feasibility study, approval documentation work intervention, technical design and manufacture, technical approval, documentation for obtaining the building permit, technical expertise.

Pre-feasibility study should include: general data of investment, the necessity and investment opportunity, technical and economic scenarios in which the investment project objectives can be achieved, data regarding the investment location, the estimated cost of the investment, permits and agreements in principle and drawn parts.

Feasibility study takes into consideration the conclusions previously drawn by the pre-feasibility study and discuss in more detail and in depth technical and economic scenarios in which the investment project objectives can be achieved. In the feasibility are shown studies and technical data of investment, constructive describing, functional and technological aspects, cost-benefit analysis, financing investment sources, estimates of labor employed by the investment, the main technical and economic indicators of investment and detailed drawing parts.

Documentation for approval of intervention works for existing works that are deteriorate or from technical reasons lost their minimum characteristics required to perform the role function, so that the required intervention needs to address and improve their parameters status. This documentation includes: general information investment, investment description, technical data of investment, life achievement and milestones, estimated costs of investment, indicators of economic efficiency, financing investment, estimates of the labor force employed in achieving investment, the main technical and economic indicators of investment approvals and agreements in principle and drawn parts.

Technical design and execution details represent the most complex design stage, characterized by the complexity that analyzes and finalize the technical solutions investment. Technical project must be designed to be clear, to ensure complete technical information on future work and meet technical, economic and technological beneficiary.

Technical project includes: general information on investments, general description of the work and specialties, specifications, lists of quantities of work and economic documentation, general chart of the investment and drawn parts covering general plan and the main drawings of objects.

The technical documentation of project approval are documents extracted from technical project and subject to obtaining permits or agreements required from various specialists on the technical investment. Technical documentation for approval include: general data of the investment, a general description of the work to specialized test report documentation and drawn parts and drawings including general plan's main specialty.

Documentation for obtaining the construction permit completes the design stages.

The purpose of design is justified by obtaining the building permit for the investment. It must include: general data of the investment, the investment general technical data, general estimate of the investment, technical studies, reports verification of technical documentation, approvals and agreements required by the certificate of urbanism and drawn parts of the general plan and plan specialties.

Technical expertise are works prepared by the technical experts and certified persons may find the need to strengthen or repair works which makes the execution of interventions.

Technical expertise include: oversight, investigation methods, presentation and analysis of technical parameters, conclusions and recommendations.

All these technical documents shall consider, to fit the legal provisions of the plans and planning requirements: NSP (National Spatial Plan) and PATJ (County Spatial Plan) and the provisions plans Outstanding PATR (Regional Spatial Plan), P.A.T.I.I. (Spatial Plan inter city and associations), P.A.R.T. (Frontier Regional Spatial Plan) and P.A.T.M. (Metropolitan Spatial Plan).

These technical documentation must comply with the provisions of Law 50/1991 on the authorization of construction works where by planning documentation are:

- P.U.G.- General Urban Plan;
- P.U.Z.- Urban Area Plan;
- P.U.D.- Detailed Urban Plan.

### **CASE STUDY - TECHNICAL DOCUMENTATION FOR OBTAINING THE A.N.I.F. TIMIS AGENCY APPROVAL**

#### **Short description of A.N.I.F. activity Land Reclamation Timis Branch**

The National Land Development Agency (ANIF) carries out the following activities: operation, maintenance and repair of land reclamation declared of public utility, except for facilities planning or parts taken from federations, as well as facilities which withdrew public recognition and in which organizations were formed; execution of conservation land improvement or planning parties which withdrew public recognition, the decommissioning of the works of land improvement and planning parties who have been deprived public recognition and use of materials in accordance with the provisions of this ordinance; rehabilitate investments of existing land improvement and implementation of new facilities, information and training in land improvements, implementation and the operation of the national system of monitoring, evaluation, forecasting and warning of the economic and environmental effects of land reclamation activities, ensuring water supply to some localities of fishery, agricultural and industrial premises by arranging land improvements under its management, according to the law of land improvement services to organizations, federations and other individuals and entities; international cooperation within the power of attorney

granted by the ministry, other activities of public interest under this ordinance emergency. National Land Development Agency performs the following tasks: prepare and implement annual plans of operation, maintenance and repair of land improvement declared of public utility, make proposals Ministry of Agriculture and Rural Development on its budget and work plan for the year following financial, compile annual irrigation facilities, highlighting the distinct functional; develop land reclamation service fees; elaborate studies, projects, annual research programs and proposals for investment in land improvement rehabilitate existing or new developments and oversees running these works investment and proposals for elements of strategy and sectoral policies aimed at environmental impact of land reclamation activities and take corrective measures to mitigate or under environmental law, providing security and protection of land improvement infrastructure the land improvement that they manage, operate, maintain and repair; seeks permanent technical state of land improvement under management, perform actions of prevention and protection of land improvement under its management to the action of risk factors and natural disasters, hazardous meteorological phenomena and hydraulic structures accidents, prepare and implement action plans in case of emergency, technical advising for installations and constructions are placed running in the land improvement in its management, develops and finances its own research plan, design and computer science methodological coordinates and directs technical quality control of the operation, maintenance and repair of land reclamation conducted by county branches; approves technical documentation, contracts and finance the investments contracted with third parties suppliers and check the progress and reception work, law, develop studies on labor demand on staffing structures, training and retraining of all staff, selection and promotion within subordinate units, organize and approved the

internal audit plan, organize control preventive and track financial commitments under the law, economic and technical analyzes on organizing the activities, organizing and participating in international economic and technical cooperation in the field of land reclamation, water management and environmental protection check and measure the organization has its own accounting law organizes and carries out actions against floods, dangerous meteorological phenomena and accidents at hydraulic structures and for establishing inventories of materials and means of defense, means of intervention and alert, assets and protective equipment, safety and bedding which is done according to the regulations in force.

Land improvement under the administration of the National Land Development consists of:

- The works of irrigation facilities covering outlets, pumping stations including reversible base, pumping stations, canals and conducts for collection, transportation and distribution of

irrigation water to pumping stations pressurisation including hydraulic structures and facilities related pumping stations pressurisation, irrigation networks and related facilities, works and outflow of water from rice paddies;

- The works of drainage facilities with draining and/or gravity sewers including, primary, secondary, lower order drainage channels (tertiary) with pumping stations and associated hydraulic structures and underground drainage network composed of absorbent drains collectors.
- Construction of facilities for soil erosion control, containing works by deep erosion dams, beams, sills, bank consolidations, retaining walls, planting erosion by surface erosion terraces, grass strips and strips, earth walls and drainage works by capturing streams, drainage channels closed (coastal, marginal), outlets and hydraulic structures (fall, culverts) related.
- Production and administrative buildings.

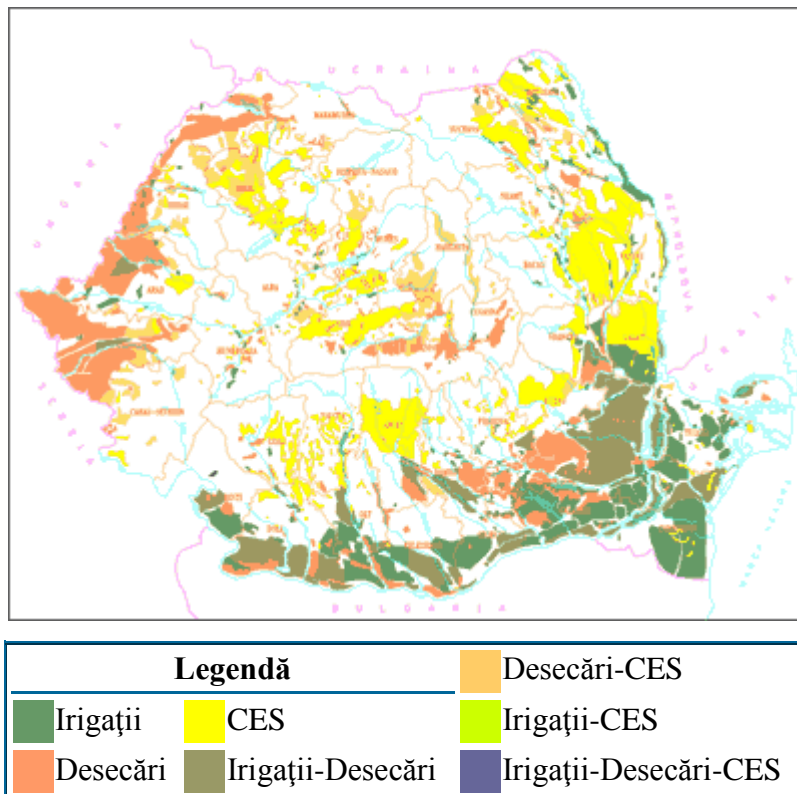


Figure 1. Land improvement in Romania

National Agency for Land Development Timis Branch has the following heritage management:

- Irrigation facilities:
  - 28 km irrigation channel of the supply;
  - 33 505 ml buried pipelines, including:
    - 3,068 ml water main;
    - 6.989 ml secondary pipelines;
    - 23 448 ml antennas;
    - 411 hydrants.
  - 5 pcs. pumping stations;
  - 1 pc. construction operation;
  - 67 pcs. hydraulic structures, including:
    - 57 pcs. bridges and culverts;
    - 4 pcs. weirs;
    - 6 pcs. side weirs.
- Placing the drainage-drainage - 450 013 ha, of which:
  - drainage - 438 788 42 fitting clothes, including:
    - 332 042 ha drainage pumping in 29 facilities;
    - 106 746 ha drainage by gravity drain fitting 24;
  - Closed Drainage - 11,225 ha, of which:
    - 10.937 ha in surface drainage pumping;
    - 288 ha in surface gravity drain;
  - 8862.1 km drainage channels, including:
    - 1521.2 km sewers;
    - Main 2657.5 km;
    - 4508.3 kilometers secondary
    - 451.1 km third
  - pumping 91 points (95 total stations) with 395 pumping units:
    - 302.5 cm / sec flow installed;
    - 35,627 Kw installed capacity;
    - 57 pcs. construction operation;
  - 5.905 pcs. hydraulic structures, including:
    - 5,643 pcs. bridges and culverts;
    - 84 pcs. weirs;
    - 178 pcs. break of slope failures;
  - 853.4 km drains;

- 311 pcs. hydrogeological wells.
- Establish soil erosion-40.913 ha] n 13 facilities, of which:
  - 64.7 kilometers channels, including:
    - 68.5 km coastal channels;
    - 21 km marginal channels;
    - 75.2 km channel management;
  - 204.1 km outlets, including:
    - 201.7 kilometers grass;
    - 2.4 km strengthened;
  - 944 pcs. hydraulic structures, including:
    - 308 pcs. bridges and culverts;
    - 633 pcs. break of slope failures;
    - 3 pcs. thresholds;
  - 21.4 km drains;
  - 475.6 km of earth roads exploitation.

### **3.2. Technical documentation for obtaining the ANIF Timis Branch Land Development Approval**

The technical documentation prepared for the National Land Development approval may be subject of zoning plans or general techniques to obtain the consent of the building permit for various land improvement works (irrigation facilities, drainage, drainage, soil erosion, diversion channels, intubation channels, construction of culverts on canals etc.), removing land from agricultural endorsement, approval rainwater disposal/waste/geothermal. The content of the approval documentation for the National Land Development Land Development Branch Timis is:

A. Written parts:

General Description of work:

1. name investment objective;
2. location;
3. topography;
4. climate and natural phenomena of the region;
5. geology, seismicity;
6. existing situation;
7. designed/proposed situation;
8. calculation summary;
9. end/conclusion.

#### Attachments:

1. planning certificate;
2. book excerpts land;
3. other approvals/agreements reached;
4. certified designer;
5. verifier attestation and report project;
6. other documents;

#### Drawings:

##### General parts:

1. area plan;
2. cadastral plan;
3. main topographic plan;

##### Specialty boards or object:

1. general architectural plans and sections, strength, facilities, including specialty plans;
2. special plans, longitudinal profiles, cross sections, as appropriate.

In 2012 the National Land Development Timis Branch 677 issued a number of opinions and agreements on surfaces decorated with land improvement works and 22 approvals and unprepared surfaces with land improvement works.

Of these, 402 were notices for sealing, 143 technical arrangements and agreements specialist 154 PUG, PUZ or stormwater discharges.

## CONCLUSIONS

This paper presents the steps for compiling the technical and economic investment for land improvement design financed from the state budget or from funds of the European Union (EU), World Bank (WB) and the International Bank for Reconstruction and Development (IBRD).

For obtaining the opinion of the National Land Development (A.N.I.F.) Land Development Branch Timis various projects affecting land improvement works were presented along with the methodology and content of the technical documentation, illustrated with a case study.

In P.A.T.N., P.A.T.J., P.U.G., P.U.Z. or P.U.D. were some land improvement are affected is necessary to establish a technical documentation, verified by a certified project inspectors M.L.P.A.T. the requirements A9, B7 and D7, on which the National Land Development (A.N.I.F.) approve amendments to achieve, so that drainage facilities, drainage, irrigation and soil erosion, are not affected to their normal function parameters.

## REFERENCES

Government Decision no. 28/2008  
Statistics National Land Development Agency  
Statistics National Agency of Land Improvements Timis Branch