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Initiatives of the Infrastructure Programme for Ukraine

Project “Strengthening of Ukrainian Communities Hosting Internally Displaced Persons”

The formulation of Hospital District Multi-Years Development Plans

Description of the process and conclusions

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Abbreviations

DRG	Diagnosis Related Groups
HD	Hospital District
HD Council	Hospital District Council
LAs	Local Authorities
LCs	Local Councils
LDG	Local Self-Government
MoH	Ministry of Health
VAT	Value Added tax

1. RATIONALE OF THE INITIATIVE

In the Order No. 165 of the Ministry of Health dated 20th February 2017[1], the establishment of Hospital District Councils and their powers are described. In Section III, the powers of the Council of Hospital Districts are determined which, among others, include the elaboration of proposals for their approval by the participants of the hospital district regarding (…) a multi-year plan for the development of a hospital district in accordance with the requirements, established by Section IV of this Regulation.

In Section IV, Article 1 requests the formulation of a development plan[2]:

> *1. Plan of development of the hospital district (hereinafter - Development Plan)*
>
> *Members of the Hospital Council are developing with the support of the (…) corresponding oblast, (…) as well as executive bodies of local councils that are participants in the hospital district.*
>
> *The development plan is for a period from three to five years (inclusive), contains annual intermediate indicators for the achievement of the final indicators effectiveness and approved by the decision of local councils.*

The following articles of Section IV define the principle content of the plan and steps for revision of the development plan.

Though content and annexes of the multi-annual development plan, the tasks of the HD Council, the adoption and revision procedure are clearly prescribed, the formulation process and methodology of the formulation is not defined. For most if not all members of HDs this strategic planning is a completely new topic; limited knowledge exists how to start, which are the necessary steps and how to implement the necessary steps. Additionally, no funds are made available by national or regional authorities to support this process, so no external consultants can be assigned. For most municipalities or rayons it is hardly possible to cover such costs by local budgets due to lack of finances. Also, it is inevitable that the members of the HD Councils are actively involved in the formulation of the development plan because upcoming implementation, monitoring and revision requirements require adequate knowledge of applied methodology, of the derivation of content and financial calculations and of defined implementation structures as well. Lack of knowledge and lack of funds for external support form a considerable impediment that the legally prescribed formulation of development plans for HDs actually is done adequately.

In cooperation with “U-LEAD for Europe: Ukraine Local Empowerment, Accountability and Development Programme” the project “Strengthening municipalities hosting internally displaced persons”, implemented by GIZ, supported the Council of Polohy Hospital District (hereinafter Polohy HD) in the formulation of its multi-annual development plan. This support aimed on two purposes:

1) Support of the HDC Polohy in the formulation of the development plan for the HD and plans for the individual hospitals.

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[1] Ministry of Health of Ukraine (2017): Order No. 165 on “Model provision on the establishment of the hospital district”; Kyiv, 12 p.

[2] Ministry of Health of Ukraine (2017): Order No. 165 on “Model provision on the establishment of the hospital district”; Kyiv, page 10f

2) Introduction of a methodology which use simple indicators, consider financial scenario to identify most viable solutions and strengthen the information/participation of the residents.

The process for the formulation of the development plan started in July 2018 and the final draft of Polohy HD development plan and of the development plans for each hospital in the hospital district were submitted in May 2019.

Presently, the Government of Ukraine intends to restructure the hospital districts and the hospital councils. Resolutions on "Model provision on a hospital council" and on "Procedure for establishing hospital districts" are drafted[3], which still need to be approved by the Cabinet of Ministers of Ukraine.

Those drafted resolutions arrange level and organization of hospital districts and the related hospital councils in a regional manner. Each Oblast should form only one hospital district in future, instead of several hospital districts per Oblast as for now. Consequently, also only one hospital council should be established per Oblast, chaired "by the head, who is the deputy head of the Council of Ministers of the Autonomous Republic of Crimea or the head of the oblast state administration, whose functional responsibilities include health care."[4]

According to the drafted resolutions, the development plan for the hospital district shall be formulated by the respective Regional State Administration, taking into account the proposals of the hospital council; the development plan shall be approved by the head of the respective Regional State Administration upon agreement with the Ministry of Health[5]. In case of approval of the provisions by the Cabinet of Ministers of Ukraine, some details of the formulation process described below needs to be adjusted. However, the principle steps including the public presentation and discussion of the draft development plan in the cities, hromadas and rayons as members of the hospital district should be followed.

[3] Government of Ukraine (2019): Draft Resolution of Cabinet of Ministers on "Model provision on a hospital council", Kyiv, 4 p.
Government of Ukraine (2019): Draft Resolution of Cabinet of Ministers on "Procedure for establishing hospital districts", Kyiv, 5 p.

[4] Government of Ukraine (2019): Draft Resolution of Cabinet of Ministers on "Model provision on a hospital council", Kyiv, page 2

[5] Government of Ukraine (2019): Draft Resolution of Cabinet of Ministers on "Procedure for establishing hospital districts", Kyiv, page 3

2. GENERAL DESCRIPTION OF THE APPROACH

The support provided by GIZ covered all steps of the process (see Graphic 1). This means the formulation of the document is only one part of the process; others are less prominent but anyway not less important! These refer to forth and back discussion of draft concepts and public discussion of draft plans to ensure optimum conditions of future development and improved ownership.

Based on the "Methodology for selecting acute care hospitals (ACH) within the hospital district boundaries"[6], three criteria for the determination of future roles of the individual hospitals within a hospital district were applied:

- Number of residents reached
- Territorial accessibility (distances) satisfying 60-min criteria
- Amount of services offered by each hospital

Though each of the abovementioned criteria are inevitable for a qualitative determination and formulation of conditions for future development of the hospitals in the HD, they are not sufficient.

The approach applied aimed to emphasize on two more elements which are necessary for sustainable planning:

- Financial calculations as an additional criterion to determine the optimum structures of hospitals' future functions on an objective base presenting sustainability in the operation of the health care at the secondary level in the HD, and
- the information and participation of residents in an early stage to consider their fears and needs as (potential) patients and to get ideas how the needed adjustments, which are often linked with reduction of functions and changes in staff structure, can be communicated to the residents at best.

From the very beginning it was the aim of this initiative to go through the entire process and to support and consult the Polohy HD Council not only in the formulation of the content of the development plan but also in the conduction of reconciliation steps with the members of the HD and the residents to have an agreed development plan for the HD and for the individual hospitals as well, ready for the adoption by the relevant local councils of members of the HD.

Both aspects, the formulation of the HD development plan document and the process for the formulation and approval of the HD development plan cannot be taken as separate elements: A plan document of good quality is based on an adequate process, and an adequate process is based on a good understanding of the required quality of the plan document!

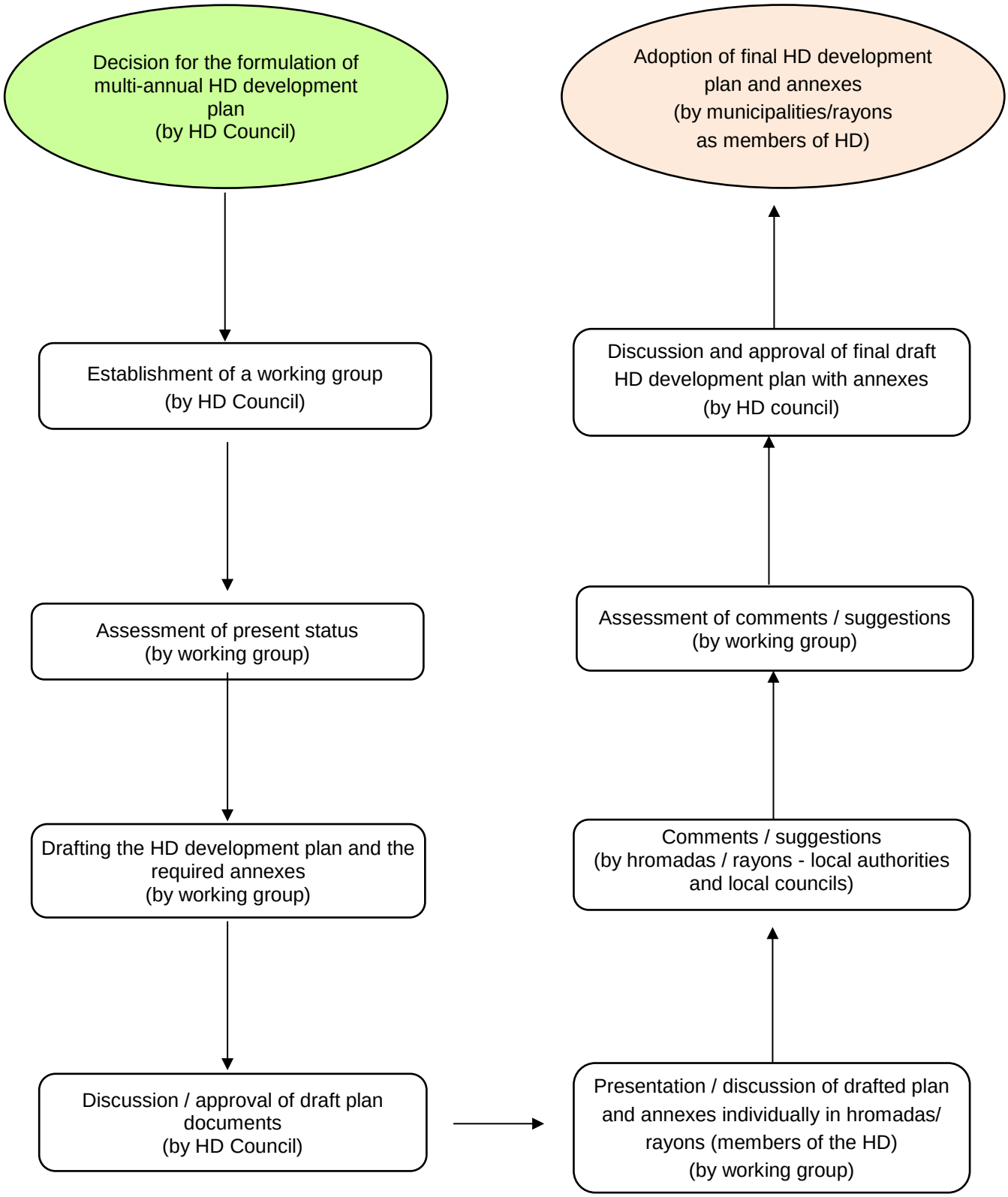
Integral part of the support approach was the conduction of further capacity development elements. Aim of those additional measures was further development of knowhow in planning and implementation of the HD development plan. Particularly, this included training on strategic planning and financial management for hospitals as well as a study on potential effective joint hospital management in the HD based on relevant forms of inter-municipal cooperation.

For the conduction of the consultancy to the Polohy HD Council, GIZ contracted the consulting company Civitta UA with the assignment of international and national experts.

[6] USAID/Deloitte (2018): Methodology for selecting acute care hospitals (ACH) within the hospital district boundaries; Kyiv, p. 1

3. DESCRIPTION OF THE INDIVIDUAL STEPS OF THE FOR THE FORMULATION AND APPROVAL OF HOSPITAL DISTRICT DEVELOPMENT PLAN

Graphic 1: Sequence of steps of the process for the formulation and approval of HD development plan



3.1 Decision for the formulation of the multi-annual HD development plan (by HD council)

Though the decision to start the formulation process is a normative act by the HDC, this step should be used to decide on all crucial and critical matters of the process! By the decision, the time frame and the way of formulation are defined. It is important that the formal decision and related documents are clear in their understanding even by those readers who were not participating in the council meetings.

The HDC decides in which way the HD development plan will be formulated. This can be done by the working group composed by members of the council solely; this can also be done by the working group of the HDC plus specialists of the hospitals and local self-governments (LDGs) or external experts. In case of inclusion of external support, the required steps and responsibility for identification and contracting of experts should be described. Identification and contracting of experts must follow transparent procedure; the definition and fixing of the required steps in the decision respectively in its annexes is an important element to ensure transparency of this procedure.

The main document - the actual decision to start the formulation process - should not be overloaded by the description of details of particularities. It is recommended to attach all further explanations and defined procedures as annexes to the decision.

3.2 Establishment of a working group (by HD council)

The Hospital District Council (HDC) is a large group of persons who are delegated by the members according to the number of residents - prescribed in the Order No. 165 of the Ministry of Health (MoH). The HDC is not the right body to actively formulate the development plan and its annexes!

Therefore, the HDC has to establish a working group which organizes and conducts the necessary tasks required for the formulation of the plan. Members of the working group should be members of the HDC. The working group should be entitled to invite external experts to their meetings and in the conduction of the tasks. However, in order to use the existing expertise within the HD and to increase ownership it is advisable that the bulk of the tasks is done by the working group.

The formation of the working group needs to consider crucial aspects:

- The proposed and selected members of the working groups should have technical background, either in medical services, hospital management, formulation of strategies, or community development; the full range of required expertise should be integrated in the working group.
- The availability in time of the selected working groups members to perform the required tasks as participation in meetings, reading and assessing documents and data, preparing parts of the development plan and its annexes, etc.
- The representation of all members of the HD, i.e. municipalities and rayons, in the working group has to be ensured to include particular territorial knowledge and interests in the drafting of the development plan and its annexes.
- Internal rules of procedure for the working group have to be defined and approved by the HDC.

In case of Polohy HD, out of 29 members of the HDC 15 participants were selected as members of the working group. The working group formed by council members was assigned to prepare the document, supported by the external experts contracted by GIZ.

After formal establishment, the working group submits an activity plan including a tentative time schedule to the HDC for consideration. The work plan and time schedule were prepared and presented by the external consultants. Both proposals were discussed and approved in a meeting of the Polohy HD council.

Before starting with the planning process, the members of the working group were qualified in strategic planning in a two-days training (see also Annex 1). The training was used also to discuss existing conditions in the hospital district and to prepare a preliminary SWOT assessment. It is recommended that superior authorities (e.g. Regional State Administration, MoH) provide training to the working group members in order to ensure the same level of departure of the individual members and thus to effective operation of the working group in fulfilling their tasks.

3.3 Assessment of present status (by working group)

The analysis of the status-quo bases first of all on statistical data, protocols and reports. It is important to get as much as possible data and for as much as possible areas, not only concerning the hospitals and their services. Demographic development, transport infrastructure, settlement structures, etc. form decisive framework conditions for the identification of development options for the 'hospital landscape' and feasibility.

Widespread problems of data in Ukraine are inaccuracy and lack of data rows. That is why data cannot be taken always as reliable but often has to be considered as providing "hints" on existing conditions which need some interpretation based on professional experience.

It is important that data analysis is supported by additional sources of information as communication with staff members, open exchange of professional opinions with colleagues from all hospitals in the hospital district. Ideally, external expertise can be weighed in to get an outside perspective on the assessment.

It is highly recommended that the established working group jointly discuss the status-quo of key performance indicators. This creates a mutual understanding of the foundation of necessary decisions on the future development orientation of the hospital district.

For the analysis of the status-quo in Polohy HD, data were asked from the Oblast State Administration and from the individual hospitals as well. The external experts compiled a list of reports and protocols which obligatory must be filled in by hospitals. Additionally, questionnaires were sent to the hospitals asking for particular aspects. After the first assessment of the received data, the experts visited each hospitals to get a personal impression on existing equipment, internal processes, etc.

A particular methodological approach was the definition of key indicators of medical quality and their assessment for each hospital in Polohy HD jointly by the working group members. The results for each hospital and the consequences for the future allocation of functions in the hospital district reflect the consensus reached in the working group. This methodological approach offers several benefits for the process:

a) The analysis of status-quo of medical services and their quality in each hospital does not depend on data which often are inaccurate.

b) This approach of analysis of key performance indicators merges the use of data and the use of technical competence and working experiences of chief doctors; this combination provides a full understanding of the quality and development potential of the medical services and functions in each hospital.

c) This approach is highly participative and transparent.

d) Though the key performance indicators are discussed per individual hospital, the complete picture of the hospital district is always seen and possible interlinkages of functional allocation are getting obvious.

3.4 Drafting the HD development plan and the required annexes (by working group)

Based on the results of the analysis of status-quo, directions and objectives of future development of the 'hospital landscape' and the individual hospitals will be formulated. In the Order No. 165 of MoH is clearly prescribed which elements the HD development plan has to cover and what has to be elaborated in annexes.

An important aspect in this step is the consideration of different development options, for the hospital district as a whole and for individual functions and services as well. The consideration for the future development of the Polohy HD is based on seven exceptional elements for ensuring high-quality health care:

| Safety

| Patient Centricity

| Efficiency

| Knowledge

| Accessibility

| Impartiality

| Partnership

For the identification of adequate allocation of functions, three general criteria were used[7]:

1. Coverage of residents,
2. Accessibility in 60 min. and
3. Quality and number of services.

Additionally as an important criteria for the identification of the best option, **detailed cost calculations were conducted**. Cost calculations allow to consider efficiency and long-term economic feasibility as decisive aspects for future development. This is the more important

[7] USAID/Deloitte (2018): Methodology for selecting acute care hospitals (ACH) within the hospital district boundaries; Kyiv, p. 1

as funding of hospitals will change and the hospitals need to apply cost-related budget planning.

For the comparison of cost calculations, three options were chosen for the work of medical departments:

1) **Status quo option** – do not make any changes to the work of medical departments
2) **Minimum option** – decrease number of non-medical staff
3) **Optimal option** – participating in HD district initiatives and specialization of the hospitals

For the comparison of cost calculations for the work of non-medical departments and in consideration specific needs and conditions (laboratory services, administrative services, food services, laundry) four options were chosen:

1) **Status quo option** – do not make any changes
2) **Optimization** – decrease number of staff and purchase of equipment
3) **Centralization** – creating of joint facilities (in case of laboratory cooperation with primary HC to ensure urgent analyzes)
4) **Outsource** – outsourcing of services to private companies

For each option, the achievable decrease of costs were calculated. The financial assessment allows the consideration of economic aspects in the identification of future development orientation of the hospital district. This is inevitable for the long-term provision of the quality of medical services in hospitals and the medical care of the population.

The discussion of different options for the future development follows the obvious need to consider diverse implications of planning:

- Priority of best possible medical service for the residents.
- Restrictions in financial resources.
- Lack of qualified patients' transport and bad quality of roads in rural areas.
- Social costs linked to optimization of medical and non-medical services (first of all loss of working places).

The discussion of different options allows to better justify the finally identified best option. And the finally identified principle development option of the hospital district is the prerequisite for the formulation of the required annexes to the HD development plan:

- Description of clinical paths of patients within the hospital district.
- Optimal distribution of functions for the provision of medical care between participants in the hospital district.
- List of health facilities whose functional capacity is will be raised to the level of functional capacity of the hospitals of the first or second level.
- Plans for the development of health facilities.
- Proposed approaches and measures for reorganization, including re-profiling, of health care facilities.
- Financial plan.
- Mechanisms of monitoring and reporting by health care institutions.

3.5 Discussion / approval of draft plan documents (by HD Council)

Drafted HD development plan and required annexes including plans for individual hospitals as a whole package need to be discussed and approved by the HDC before presenting the drafted recommendations to local stakeholders and the public in the member hromadas and rayons. This is to show that the drafted documents and provided recommendations not only base on the working group or individual experts but present the intention of the HDC as the relevant responsible body.

Due to local and regional requirements, the council of Polohy HD approved the HDC development plan and the functional determinations together with the plans for the individual hospitals; not all annexes were formulated finally. For the presentation in the member hromadas and rayons the future functions of the individual hospitals is decisive for residents and local political and administrative decision-makers.

The dynamic of the health care reform and the changing foci of the reform made the elaboration of financial plans highly doubtful in the scope of the formulation of HD development plan. Insecure prospects on future funding caused inability of local actors (hospital management, local political and administrative decision-makers) to prepare a reliable and realistic financial plan for the implementation of the activities proposed in the HD development plan and the hospital plans.

3.6 Presentation / discussion of drafted plan and annexes individually in rayons/municipalities (members of the HD) (by the working group)

Presentation and discussion of the drafted HD development plan and its annexes as well as possible recommendations by the HDC have to be implemented in all territorial units which are affected by the area coverage of medical services being subjects of the HD development plan and which are obliged for co-financing of costs out of the local budget. These are the rayons as the present owner of the hospital, but also the individual hromadas on the territory of the HD.

The presentation and discussion can be organized as a sequence of meetings and hearings in the different territorial units; they can also be organized in a joint manner. This depends on the territorial and settlement structures and also on available facilities and capacities in organization and moderation of bigger events.

Number and positions of participants should be defined in a way to ensure that all stakeholders and the public get a chance to contribute in an open and transparent manner. This can be achieved by public hearings being announced in the local media and internet. This can also be achieved by transparent pre-selection of competent stakeholders and limited number of residents to be invited in order to make the discussions more effective. All forms of participation can be considered; it is the task of the working group in coordination with the HDC to define the best approach for the particular context as public hearings, meetings of local representatives, online format, etc.

In the course of the formulation of the HD development in Polohy HD, the mode of open public forums and discussions in the six Rayons were chosen as the optimum form of presentation. The number of participants differed considerably. All presentations have had in common that a big share of the time had to be used for the explanation of the health care reform and

the consequences for hospitals, but of course also for residents. The presentation of the draft HD development plan and the plan for the respective hospital is often the first occasion to inform about the reform and its practical implications and consequences. This holds for residents and for local politicians and administrators as well.

It became obvious that the time of the meetings were not sufficient to explain the reform and to discuss the recommendations for the development of the local hospital thoroughly. Only after some time the participants have got an idea what are the consequences if the reform gets down to the individual hospital. Understandably, at first most of the participants opposed any change.

The outcome of the presentation were different. In one rayon working groups were formed as a result of the public hearing to further discuss particular aspects of the draft plan for the local hospital, whereas in other rayons the hospital provided some suggestions for amendment or no further intensive discussion followed at all.

3.7 Comments / suggestions (by local authorities and local councils)

Before further elaboration of the drafted documents by the working group or external experts, the results of the discussions in the member hromadas / rayons need to be summarized in comments and recommendations. Those conclusions and recommendations needs to be prepared by the competent local authorities (hospitals, health care departments, etc.).

Before forwarding conclusions and recommendations for changes in the documents to the HDC for consideration, those conclusions and recommendations need to be approved formally by the respective local councils. The local councils as the responsible local political body for allocation of local funds and for development of the local territorial units have to proof that those conclusions and recommendations are official responses of the respective territorial unit on the presented draft documents for future development of the HD and the individual local hospital.

It is indispensable that beside the council of the owner of the respective hospital, also the councils of all municipalities which are affected by the changes in the respective local hospital approve the conclusions and recommendations. This includes those municipalities which are located in the coverage area of the medical services provided by the respective hospital and/or which contribute to cost recovery for medical services by their local budget.

Extent and quality of the responses by the respective local council to the individual hospital plans can differ very much. The better the presentation and discussion of the draft plan documents are prepared and the more the local authorities are involved the better the quality and relevance of the comments and suggestions.

3.8 Assessment of comments / suggestions (by working group)

Each comment, suggestion and recommendation submitted by the local councils of the member hromadas / rayons need to be thoroughly assessed by the working group or by invited external experts.

In case a submitted comment or recommendation is justified or useful as amendment of the drafted documents, it has to be included into the respective document.

In case a submitted comment or recommendation is not justified and not relevant, the reason for non-consideration, the reason for rejection have to be noted and have to be sent to the competent local authorities of the respective member hromada / rayon.

On base of the received valid comments and recommendations the drafted HD development plan and the required annexes will be amended and finalized by the working group of the HDC or the invited external experts.

3.9 Discussion and approval of final draft HD development plan with annexes (by HD council)

At the end of the day, a mutual agreement on the final draft HD development plan and its required annexes is needed. This is important because on the one side the HD development plan and its annexes present a package for the entire HD but on the other side the local councils see their individual local budget, political intentions and the local population as decisive factors for acceptance.

Though the members of the HDC are formally representatives of the local councils, the interests in local councils are particular according to the individual context and not always in line with representatives' opinion. So, it might be necessary to clarify possible differences between HDC and local councils.

Principle changes of individual documents (HD development plan or annexes) affect also other documents and thus cannot be done just by that. To a certain extent, differing necessities and interests can be solved by adjusting details in the plans for individual hospitals.

3.10 Adoption of final HD development plan and annexes (by hromadas / rayons as members of HD)

Hospitals are (co-) funded by local budgets and the hospitals are 'owned' by hromadas / rayons. Therefore, respective hromada / rayon councils need to adopt the HD development plan and its annexes. Only following the adoption by the local councils, the HD development plan and its annexes receive the status of a legal document and its normative power can be used for the development of the hospitals and the medical services on the territory of the HD.

4. CONCLUSIONS

4.1 Capacity development

Members of HDCs are not planners by profession. The responsibilities assigned to the HDC and - based on this body - to the working group in respect of the formulation of HD multi-annual development plan by the Order No. 165 of the Ministry of Health dated 20th February 2017 describe areas of expertise which does not exist to sufficient extent. For most members of HDCs, the formulation of a complex development plan is a first-time exercise. Additional capacity development measures and consultancies in crucial aspects should be considered.

For the pilot in Polohy HD, GIZ implemented additional support in

- training on strategic planning,
- training on financial management in hospitals and
- assessment of effective hospital management in the hospital district based on inter-municipal cooperation.

Training on strategic planning

Due to the fact that comprehensive strategic planning is new for most political and administrative decision makers, the implementation of a training on strategic planning was integral part of the support to the appointed working group which members were the target group of the training (training program see Annex 1).

The training approach was a mixture of lectures and practical simulations of strategic sessions, such as conducting a SWOT analysis, defining vision and strategic objectives, discussing action plan. During the first day of the training, an overview of instruments and methodology of strategic planning was presented. Participants got be acquainted with step-by-step methodology for strategic planning, typical structure of strategies and examples of different strategic plans of similar institutions. Moreover, the participants' vision of the current problems of the medical institutions within the Polohy HD was discussed in a problem mapping format. During the second day of the training, the basic goal-setting instruments and principles of the long-term plan’s implementation were introduced to participants. As the final step of the practical work, the participants designed universal action plans for most popular goals for the individual hospitals and presented them to each other.

To ease the introduction of strategic planning for the participants, the focus was laid on strategic planning for individual medical institutions like a hospital. Participants could link the discussion of planning topics with their institution and therefore they could better understand the relevance and ways to consider needed improvements and how to put them into planning tools.

Planning tools and approaches for the HD development plan considering territorial conditions and possible respectively required mutual linkages between the individual hospitals were not presented during the training but were applied at a later stage in the scope of the moderated strategic sessions of the working group.

Purposely, the training on strategic planning was implemented some weeks before the kick-off meeting for the planning process which represented also the first strategic planning ses-

sion of the working group. By this, the introduction of strategic planning requirements focusing on institutions could also be used to collect additional data from hospitals' representatives that are not reflected in statistical documentation.

Training on financial management in hospitals

For the formulation of the HD development plan and the plans for the individual hospitals, financial criteria for the identification of most economic solutions for services were used. Therefore, knowledge in financial management is crucial for the definition and implementation of optimum development options. Insufficient knowledge does not only concern the consideration of financial approaches in planning but affects the implementation of the development plan and the sustainable operation of the hospitals in future. After clarification with local partners on required topics a program for a 2-days training was elaborated (training program see Annex 2).

Qualified knowhow in financial management is the more in demand as hospitals will change their status from being budget organizations to become non-profit (local) public enterprises. This generates new responsibilities and requirements in financial planning and management for hospitals but also for municipalities as the owner of those public enterprises. Beside specific financial tools for health care institutions as for example Diagnosis Related Groups (DRG's) this includes also principle subjects as formulation of a financial plan, mid-term and long-term financial planning, value added tax (VAT) regime, forecasting and accounting hospital costs and revenues.

The arisen necessity for the financial training revealed that the improvement of capacities for the formulation of the HD development plan cannot be seen separated from the improvement of capacities in relevant areas. Financial management appeared as an obvious and crucial one. However, the improvement of any kind of management as well as soft skills as facilitation, moderation and effective coordination needs to complement efforts to support the formulation of the development plan.

Assessment of effective hospital management in the hospital district based on inter-municipal cooperation

For the development of a qualitative and efficient health care within a hospital district it is self-evidently not sufficient to restructure the individual hospitals only and to add new services respectively to reduce existing services. The hospital district and the covered hospitals have to be approached as an integrated institutional system - as a 'hospital landscape' so to say!

This nature as an integrated institutional system is expressed by the determination of different and complementing functions of each hospital. Multi-profile and acute care hospitals are defined and also future functions for the remaining other hospitals which often will take the tasks for chronic diseases and stabilization of patients but also geriatric or palliative functions.

The character of an integrated institutional system has also implications on the future management structures. Changing functions and tasks means also changing cost-revenues-structures for the hospitals in the HD. It means also changing structures of medical and other technical hospital staff according to new or reduced services. Important functions as financial, personnel, quality or facility management are strongly interlinked. Increase of quality and efficiency of medical services in a HD by restructuring the institutional landscape can only be achieved and sustained by improved and effective management of the integrated institutional

system. Owners of the hospitals, which in future receive the status of non-commercial public enterprises, are in future mainly the municipalities in the hospital district. The owners are responsible to establish the optimum management structure to ensure both, quality and efficiency of the medical services at the second level institutions.

Being part of the integrated institutional system for second level health care, an adequate form of management structure is inter-municipal cooperation (IMC). In Article 4 (1) of the Law of Ukraine “On cooperation of territorial communities” (IMC-Law) principle forms of IMC are determined. Three out of the five forms of cooperation listed in Article 4 (1) present appropriate forms for the joint management of the ‘hospital landscape’ in this integrated institutional system of a HD:

- Joint maintenance and financing of enterprises, institutions and municipal entities – infrastructural objects, by the subjects of cooperation;
- Establishment of joint municipal ventures, institution or organizations – joint infrastructural objects, by the subjects of cooperation;
- Establishment of joint governing bodies by the subjects of cooperation for the joint exercise of powers established by law.

IMC in hospital management is quite a new approach in Ukraine. So far, most of the arrangements base on delegation of tasks from one municipality to another. However, no structured assessment exist of requirements and benefits of more complex IMC forms and their potential for a particular territorial and institutional context. This means the local actors do not dispose on a qualified base to discuss the different options and to see which one is at best for the general management of hospitals or management of specific functions in health care sector. In order to create such a qualified base and to open the discussion on optimum management structures for the hospital district, a study was prepared describing

- Main challenges in health care in Ukraine and in Polohy Hospital District;
- Selected forms of inter-municipal cooperation and their general structures and legal requirements, including a roadmap to initiate inter-municipal cooperation;
- Exemplary scenarios for the management of specific functions based on inter-municipal cooperation in Polohy Hospital District.

  (Executive summary of the study in Annex 3)

4.2 Lessons learned and recommendations

- ✓ The process as such, i.e. the formulation of a development plan as well as the main features of the applied methodology are new to most members of the HDCs. Due to the fact that HDCs are also responsible for monitoring and updating of development plans strategic planning knowhow is an inevitable prerequisite of effective work of HDCs.

- ✓ This lack of experiences in formulation of a development plan was complemented by the lack of experiences in cooperation between several hospitals and rayons/municipalities. The establishment of the HDCs did not include the qualification and support of the council members in coordination, moderation and finally effective collaboration.

- ✓ A crucial impediment for the formulation of HD development plans and the qualified involvement of relevant stakeholders is the imbalanced sequence of reform steps. The

formulation of a multi-year development plan is negatively influenced if the hospital owners and heads of hospitals cannot rely on a finally established financial structure.

- ✓ Also not finalized changes in ownership and legal status of hospitals generate insecurity what needs to be done and what could be done, who have to be involved in the formulation process, etc.

- ✓ All in all, non-finalized reform steps cause an unsatisfactory mood of the local stakeholders because the formulation of the development plan seems to be reduced to an intensive but more or less useless exercise.

- ✓ The existing considerable uncertainness at the local level asks for trustful, flexible but nevertheless highly qualitative consultancy to the local stakeholders.

- ✓ Beside matters of medical services and hospital management, this consultancy needs also to include coordination and communication issues. Better coordination and communication is needed among the members of the HD but also between the political and medical responsible authorities and the residents.

- ✓ Existing fears and subjective and objective disadvantages for residents or particular resident-groups needs to be taken serious and arguments needs to be exchanged.

- ✓ Support to implement and manage individual link of the entire planning chain only provides little benefit in the long run. Even if individual steps of the process can be realized successfully with external support, the formulation of HD development plans and their implementation requires an inclusive understanding and knowhow by the council members and other local decision makers.

- ✓ The support which was provided to Polohy HD, is characterized by a comprehensive and flexible approach. Not only support in the formulation of the plan document was given. The Implementation of public hearings to the draft plans, the preparation of council meetings, etc. helped the HD Council to manage the required process to formulate, to promote and to approve the HD development plan and the plans for the individual hospitals.

- ✓ However, it is obvious that such a comprehensive and intensive support cannot be provided to each HD, not even in an individual Oblast. A comprehensive support and qualification approach is needed as a national task.

- ✓ The implementation of this approach and the realization of immediate support and qualification of HDC members, decision makers in medical institutions and local councils, and also relevant stakeholders of the civil society should be in the responsibility of regional authorities and regional institutions.

- ✓ Accordingly, those regional authorities and regional institutions need also to be prepared for this competency appropriately.

- ✓ A number of initiatives are discussed to establish training structures for the improvement of medical services. But the anchoring and sustainability of quality and efficiency of medical services - including planning, financing, personnel management, etc. - depend on good management in institutions and of the health care sector as whole at the local level.

- ✓ As long as no support structures for hospital owners and managers in health care institutions are established, the fulfillment of required tasks depend to a large extent on external support by chance or will not happen at all.

ANNEX 1: PROGRAM TRAINING ON STRATEGIC PLANNING

Training day 1

9.30 Opening and acquaintance with participants

10.00 Bloc 1.1. What is a strategy? Why institutions need a strategy (lecture)
Presentation of foreign strategic planning practices: why does strategy is important? What impact does strategy have on the sustainability of institutions, communication with stakeholders and fundraising?

10.45 Coffee break

11.15 Bloc 1.2. Roadmap for strategic planning (lecture)
Presentation of systematic methodology for strategic planning. Overview of typical structure of strategies and examples of different strategic plans of similar institutions. Overview of frameworks and templates. Participants will receive general "to do list" for creating strategies.

12.00 Bloc 1.3. Needs of stakeholders and existing service lines (work in groups)
Work in groups on stakeholder's mapping and defending needs of different target groups. Discussion.

13.00 Lunch

14.00 Bloc 1.4. SWOT matrix (work in groups)
Work in groups on SWOT matrix (1 SWOT matrix for hospital district and 2 common SWOT matrix for different types of hospitals). Discussion and evaluation importance of each statements on the matrix by mini stickers.

15.30 Coffee break

16.00 Bloc 1.5. Matrix "Target groups – Service lines – Resources" (work in groups)
Work in groups on "Target groups – Service lines – Resources" matrix. Discussion and evaluation by mini stickers lack or insufficient quality of which service lines is the most critical.

17.30 Closing session
Summary of training 1, Q&A session

18.00 End of training 1

Training day 2

9.30 Overview of 1st training's results

10.00 Bloc 2.1. The main trends of the hospital's development (lecture)

Participants receive an overview of main world and domestic trends of the hospital's development.

11.00 Coffee break

11.30 Bloc 2.2. Development of vision statement for hospitals (individual work and discussion)

On this session participants will create a vision of hospital/hospital district, based on the examples of vision statements provided by lecturers.

13.00 Coffee break

14.00 Bloc 2.3. Decomposing vision to 3-5 strategic priorities (work in groups)

Introductory mini-lecture and work in groups on the setting goals and 3-5 strategic priorities and criteria for their fulfilling.

15.30 Coffee break

16.00 Bloc 2.4. Action plans and indicators for most common goals ("World cafe" format).

An introductory mini-lecture about "World Cafe" format. The five most experienced participants or volunteers ("table hosts") choose five most popular goals. Other participants ("guests") move between the tables and propose additional activities in the action plans. Presentation of results by "table hosts". Discussion.

17.30 Closing session

Summary of training 2, Q&A session

18.00 End of training 2

ANNEX 2: PROGRAM ON TRAINING ON FINANCIAL MANAGEMENT

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Initiatives of the infrastructure program for Ukraine
Support of territorial communities of Ukraine due to the increasing of IDP's number

TRAINING PROGRAM

«Financial planning and forecasting in medical institutions »

Day 1.

9.30 Opening and acquaintance with participants

10:00 Bloc 1. Roadmap for financial planning and forecasting (lecture - with insertion of international experience of financial planning and forecasting)

Overview of systematic methodology for financial planning and forecasting practices and examples of different financial models. The following questions will be discussed:

- Financial plan is a set of facts and assumptions where you can have only one variable (profit, revenue, costs, number of employees and so on)
- Understand "your variable"
- Collect all data which will help you, try to rely on average of facts for last years, not on previous year only
- Do not be afraid to make assumptions where you don't have exact data, assumptions will change on the fly.
- Build several cases (optimistic, realistic, pessimistic) i.e. number of patients 1000/1300/1500.
- Always try to be pessimists if you will survive then you are in good condition to work in a such way
- Financial planning allows to check if your operational model can survive
- Loss making is a warning not a death
- Zero-based budgeting as a way to cut all unnecessary costs (don't use financial plan for previous year to adjust to current one, start from scratch)
- Track your plan vs fact by quarters, make changes if necessary.

11.30 Coffee break

12:00 Bloc 2. Financial plan - how to do it and its structure

Presentation of key principles of financial plan structuring and how it should be done. The following questions will be discussed:

- Financial plan is a simplified variant of financial model, in modelling you are able to change the logic while in plan you should be strict to template
- Using financial planning firstly create a template, you can create it by each department or by buildings or in any other way.
- It will be easier to start from revenue side (separate different sources of financing) continue with cost side (CAPEX vs OPEX), after this you will have EBITDA

- Then include all possible taxes which should be paid by you (income, social security, VAT)
- VAT – indirect tax which is paid by customer but redirected to the service provider, which will pay it. So, in very simplified case, your VAT is 20% of all your revenue received from customer.

13.30 Lunch

14.30 Bloc 3. Forecasting and accounting of revenue from hospitals (lecture + training case)
Overview of methodology for revenue forecasting. The following questions will be discussed:

- Always start from Cost forecasting it will allow you to have a benchmark
- Separate all revenue sources (DRG, rent, private laboratory so on)
- For DRG use the pricelist which you will be provided with in 2020-2021
- Forecast number of patients based on demography and assumptions
- Try to predict the patients flow to other hospitals based on reasonable assumptions (i.e. quality of services provided in Zaporizhzhia is better, and 10% of patients will go there)
- Always make "dirty checks" i.e. you know that you have only one doctor and he is not able to treat more than 20 patients per day, if demography shows more than 500 patients then be aware

16.00 Coffee break

16.30 Bloc 4. Introduction to Activity-Based Costing approach (lecture + training case)
Overview of the main steps that ABC methodology foresees using Australian DRG as a general example to understand what that is. The following questions will be discussed:

- ABC – a way to track your general and administrative costs split by services which you are providing.
- Partially based on ABC approach National Health Service of Ukraine will calculate cost of treatment and reimburse these costs to hospitals. To calculate the amount of reimbursement NHSU will use Form 066/o in which should be stated a diagnose and treatment.
- Usage of ABC inside is also applicable and could be useful to understand the cost of each treatment. It will allow you understand the most beneficial hospital departments.
- Use of relative ratios: i.e. you don't know how much electricity you need for dentist cabinet, but you can assume that 3 times less than for MRT.
- This kind of approach could be used if you have expertise and you can roughly estimate such ratios.

18.00 Closing session. Q&A, reflection (the main ideas of the day 1)

18.30 End of day 1

Day 2.

9:00 Review of the results of day 1
Review of the key ideas from the first day of training

09:30 and Bloc 5. Principles of allocation of general and administrative expenses. Forecasting accounting of material expenses (lecture)
Overview of methodology for different types of allocation of different expenses and for drugs and other consumables expenses forecasting.
Particular consideration of VAT and everything connected to that

11:00 Coffee break

11:15 Bloc 6. Principles of allocation of general and administrative expenses. Forecasting and accounting of material expenses (training case)
Application of information from the lecture on practice. The following questions will be discussed:

- Proper forecasting of Human Resources as a way to minimize avoidable financial losses.
- Prediction of optimal administrative costs and how to reduce them.

12:30 Lunch

13:30 Bloc 7. Forecasting of financial result. Combining generalization of all forecasts in the expected P&L (training case)

- Hospital revenue planning and budget adjustment based on a prepared revenue plan.
- How to choose the optimal model for the provision of general services (catering, room cleaning, laundry, etc.). The best way (on-site or off-site) to conduct clinical trials.

15:30 Coffee break

15:45 Closing session: announcement of homework, Q&A session

16:15 End of training.

ANNEX 3: STUDY ON INTER-MUNICIPAL COOPERATION IN THE MANAGEMENT OF HOSPITALS - EXECUTIVE SUMMARY

From May 2018 till April 2019, GIZ supported the Polohy Hospital District Council in the formulation of the multi-annual Hospital District Development Plan and the development plans for the individual hospitals in the Polohy Hospital District (Polohy HD). A crucial aspect of the development of hospitals in Polohy HD - as in every hospital district - is the idea of interlinking the various hospitals by offering complementary functions and joint services. So far, the adjustment of the management of the 'hospital landscape' as a consequent and necessary second step is not discussed in a structured manner. Municipalities as (future) owners of the hospitals are often overburdened in proper management and financing of their institutions.

The study aims to discuss various ideas of merged management of medical and non-medical hospital functions based on inter-municipal cooperation (IMC) and to assess their potential and particularities for Polohy HD, considering provisions in the formulated HD development plan and related hospital plans. By taking Polohy HD as a practical example, the assessment of applicability of different forms of IMC does not remain as academic exercise but links it with a particular territorial and institutional context.

MAIN CHALLENGES IN HEALTH CARE IN UKRAINE AND IN POLOHY HOSPITAL DISTRICT

Presently, the health care sector in Ukraine undergoes a reform process which shows considerable changes of the framework for the provision of medical services. The reform aims to address the main problems of the existing health care system in Ukraine, namely low budgetary efficiency and, as a consequence, poor quality and efficiency of healthcare delivery. Most expenditures now are used to cover current costs rather than to the development of the healthcare system as training of medical staff, purchasing equipment, conducting research, etc. Doctors often do not have the motivation to work at low salaries, which leads to the problem of staff shortages particularly in rural, remote regions.

The reform includes a new financing mechanism. The main element of the new mechanism is the principle of "money following the patient": the patient chooses independently where he or she wishes to receive medical care, and the state through the National Health Service of Ukraine pays the medical institution to provide such a service. For specialized and highly specialized medical institutions (secondary and tertiary level), the transition to a new funding scheme began in form of pilot projects in 2019. A full and inclusive transition will only take place from 2020. In the new environment, after the introduction of the new mechanism, the competition for patients may become even more extensively. It perfectly reflects the importance of structured development of the hospital district and clear structure of effective management of hospitals, which will make it possible to provide high quality medical services.

Polohy HD is one of five hospital districts established in the territory of Zaporizhzhia region. It includes the Bilmak, Hulyaipole, Orikhiv, Polohy, Rozivka, and Tokmak hospitals. Main challenges that were identified during the formulation of the Polohy HD development plan are predominantly related to bad roads and low efficiency of financial resources utilization. Most of these challenges could be resolved by establishment of appropriate structures for the management of the hospitals. A great potential is seen in the management based on inter-municipal cooperation within Polohy HD in the one form or another.

SELECTED FORMS OF INTER-MUNICIPAL COOPERATION - GENERAL STRUCTURES AND LEGAL REQUIREMENTS

Inter-municipal cooperation (IMC) is an important and a powerful tool in the decentralization process. It enables municipalities to better fulfil their responsibilities and to provide qualitative services to the residents. In Ukraine, IMC is regulated by the Law of Ukraine "On cooperation of territorial communities" which was adopted in 2014. In Article 4 (1), five forms of IMC are prescribed, out of which the "delegation of one or several tasks to one of the subjects of cooperation by other subjects with the transfer of the required resources" is most popular form of IMC and is widely used meanwhile, also in the health care sector.

More complex IMC forms are still rarely applied in Ukraine. Reasons are often lack of mutual trust, lack of experience and inability of communities to plan strategically, misunderstanding of importance of cooperation by the municipal councils, unwillingness to risk since long-term cooperation could be jeopardized in the event of changes in elected leadership[8].

The study focuses on the reflection of those more complex IMC forms as stated in Article 4 (1):

- Joint maintenance and financing of enterprises, institutions and municipal entities,
- Establishment of joint municipal ventures, institution or organizations, and
- Establishment of joint governing bodies.

Joint maintenance and financing of enterprises, institutions and municipal entities provides for flexible application of inter-municipal cooperation in the health care sector. Its aim is to share the maintenance and/or financing responsibility in order to ensure that enterprises, institutions, organizations or any other entities belonging to one of the IMC partners provides its service fully or to the agreed extent and functions to all of the IMC partners respectively to the residents of all of the IMC partners. The obvious difference to the IMC form of delegating a task is the fact that by sharing the responsibilities also the rights are shared. This means that all IMC partners are involved in decision-making and supervision. What exactly decision-making and supervision include and which decision-making power remains with the owner of the enterprise, institution, organization or any other entity is subject to the IMC agreement. It is not intended to change the ownership or to transfer assets or staff. This IMC form is quite attractive for joining municipal efforts in the provision of health care services.

The IMC form of establishing a **joint municipal venture, institution or organization** (hereinafter: joint venture) seems to be the most complex one. However, if established properly it can be the most robust, effective and efficient one! By forming a joint municipal venture, the management and political-administrative supervision of the provision of medical services is changed fundamentally. All hospitals of all involved partners of the IMC become part of the new joint venture, not only by transferring the physical assets (buildings, equipment, technical infrastructure, etc.) to the balance of the new venture but also by transferring the staff from the pay-roll and authority of the individual municipalities to the pay-roll and authority of the new joint venture. The individual medical institutions are seen as integrative parts of the entire 'hospital landscape' in the area of the IMC. The establishment of a joint municipal venture follows the legislation regarding the establishment of public enterprises as the Law of Ukraine "On State Registration of Legal Entities, Individual Entrepreneurs and Public Organizations". A formal registration of such joint municipal venture is required as this form of cooperation implies the creation of a new legal entity. Cost effectiveness can be realized first of all by merging management and administrative functions at the central office of the new joint venture, by using economy of scale

[8] Association for Community Self-Organization (2019): Survey of inter-municipal cooperation in education and health care

also in provision of specialized medical services and by better comprehensive strategic development of the medical institutions and their staff.

According to Art. 14 (3) IMC-Law, a **joint governing body** may be established in the legal forms either (1) as a separate executive body of the local council of one of the subjects of cooperation (with or without status of legal entity of a public law) requiring registration or (2) as a structural subdivision of the executive body of the local council of one of the subjects of cooperation not requiring registration. The most striking advantage of establishing a joint governing body compared to delegation of tasks is the fact that the respective tasks is given to the local council which shows the best conditions/potential to fulfil it and to provide the best quality service, but all IMC partners can supervise and monitor the realization of the tasks and decide on the strategic development of the service provision. It can be said that this IMC form is the most flexible one of all IMC forms, at least related to the three selected IMC forms assessed in this study! The type and extent of the contributions by the IMC partners depend on the character of the joint function and tasks; in many cases it will be mainly payment of the required staff and office consumable, in other cases also joint capital investment might be needed. A particular challenge of this IMC form is the risk of structural collision of competencies of the IMC partners and of competencies of the council of the 'hosting partner'; a thorough, unambiguous and non-interpretable IMC agreement is inevitable.

The **roadmap to getting IMC started** is defined in Articles 5-9 of the IMC-Law. The procedure covers 10 steps in total, starting from the initiation of IMC till the registration of the IMC at the competent national body.

For the establishment and operation of any of the assessed IMC forms, some general challenges can be seen to which answers and solutions need to be find in the context of the particular IMC:

- How to shape the IMC agreement?
- How to ensure fair and effective supervision, monitoring and decision-making by the partners?
- On which base to calculate the individual contributions per IMC partner?

Beside normative and formalized conditions it has to be emphasized that IMC are based always on mutual trust to a large extent.

EXEMPLARY SCENARIOS FOR THE MANAGEMENT OF FUNCTIONS BASED ON INTER-MUNICIPAL COOPERATION IN POLOHY HOSPITAL DISTRICT

Challenges of IMC in practice

When thinking about IMC, it has always to start with a clear purpose. **What is the particular reason to consider IMC?** IMC must not end in itself but must be applied as a tool to achieve a required or wished purpose better and/or more efficient than without IMC.

The successful application of IMC is strongly connected with non-legal and non-technical matters. **Political will, accountability to the residents and mutual trust among the IMC partners present key success factors!** IMC requires a new perspective by the local politicians and the respective local decision makers. As IMC always shows intended or unintended side effects, the side effects need to be understood and communicated.

Nevertheless, technical knowledge for the planning and implementation of IMC is also required. Those refers to:

- Processes inside the individual municipality
- Processes among the potential partners

- Legal framework conditions (opportunities, restrictions, support programmes)
- Planning the service provision or task fulfilment
- Implementation mechanisms

In principle, each IMC form can be applied for each purpose. However, the nature of the different IMC forms makes them more adequate for one purpose or another. The selection of the right IMC form for a particular purpose, the pro's and con's need to be assessed and balanced. Only then the most adequate IMC form can be identified for a particular purpose.

Two hypothetical examples were taken to show the consideration of financial issues as well as of pro's and con's of each selected IMC form. Only then the most adequate IMC form can be identified for a particular purpose. The taken examples were selected based on the context and in consideration of the particular conditions of Polohy HD. Also, the findings and objectives of the draft Polohy HD development plan and of the individual hospital plans were taken into account.

Centralization of procurement

Centralization of procurement for all hospitals of Polohy HD forms a less complex approach which is easy to realize and generate financial benefits. Qualified procurement is not yet done by the individual hospitals. For a qualified procurement considering correct tender processes, applying existing legislation in favour of the hospitals, negotiations with suppliers, using large orders to reduce the costs per unit, etc. the employment of qualified experts is inevitable in the long run; particularly in processes of autonomization when hospitals are becoming responsible for cost-coverage of their operation. Centralized qualified procurement requires hiring separate staff to perform procurement function in Polohy HD. These are two lawyers, specialists in procurement and tendering.

The annual cost for maintaining the experts could be estimated up to 400 000 UAH; other operating expenses will include office consumables up to 60 000 UAH per year. Overall operating expenses for the centralized procurement office are estimated up to 460 000 UAH a year. The economy of scale (i.e. purchasing the same equipment and inventories for all hospitals) will lead to efficient service and cost reduction which can equal up to 10-20 % (Lithuania leading practices of procurement centralization). Although the establishment of a centralized procurement office implies additional costs in the beginning, the joint procurement based on IMC is a future-oriented structural arrangement in order to save funds in the long run. The quality and effectiveness of procurement will increase which will lead to long-term savings due to optimized service and maintenance costs.

Using nine assessment criteria describing several legal, management and "soft" facts, the optimum IMC form out of the three selected IMC forms presented in this study can be defined. In the light of the situation in Polohy HD, the IMC form of **joint governing in form of a structural subdivision of an executive body of the local council of one of the IMC partners** for the centralization and joint implementation of procurement for the six hospitals in Polohy HD turns out to be most appropriate! For the determination of the location of the centralized procurement office the amount of procurement needs by local hospitals and the attractiveness of residence for the two experts to be employed needs to be considered. Also, the vicinity to Zaporizhzhia City as the location of many suppliers and the regional authorities is an important locational factor.

Centralization of laboratory services

The improvement of quality of the laboratory services will positively affect the level of diagnosis and treatment in the hospitals of Polohy HD. The analysis revealed that it is economically advantageous to establish a centralized laboratory. With the creation of a single laboratory centre, which will be co-financed by hospitals, quality services can be provided on the base of economy of scale and create

sources for upgrading technical equipment and improving the quality of analyses. This option considers a merged central laboratory to be placed at one location of the Polohy HD, leaving only the collection points in the individual hospitals and ensuring the daily transportation of the collected material to the central laboratory.

Beside the increase of quality, the establishment of centralized laboratory services for all six hospitals in Polohy HD creates considerable financial benefits for the IMC partners. Although investments need to be done in blood analyzers and IT-equipment in the beginning, the running costs of the provision of laboratory services can be reduced significantly. According to the estimated necessary amounts and costs after centralization, the estimated total savings in running costs could be summed up to amount of more than 4 000 000 UAH per year compared to present situation. Even if investments are needed to equip the centralized laboratory and the hospitals in order to provide basic laboratory services in quality, there will be a saving even in the first year.

Using the same assessment criteria as for the example on centralization of procurement, the IMC form of **the joint maintaining and financing of a centralized laboratory** in the ownership of one IMC partner seems favourable. The determination of the location should be based on realistic amount of laboratory services by each hospital in future. In order to minimize transportation costs - particularly because of bad road conditions, the centralized laboratory should be located in the vicinity of the hospital with the biggest number of expected future demand of test and services.