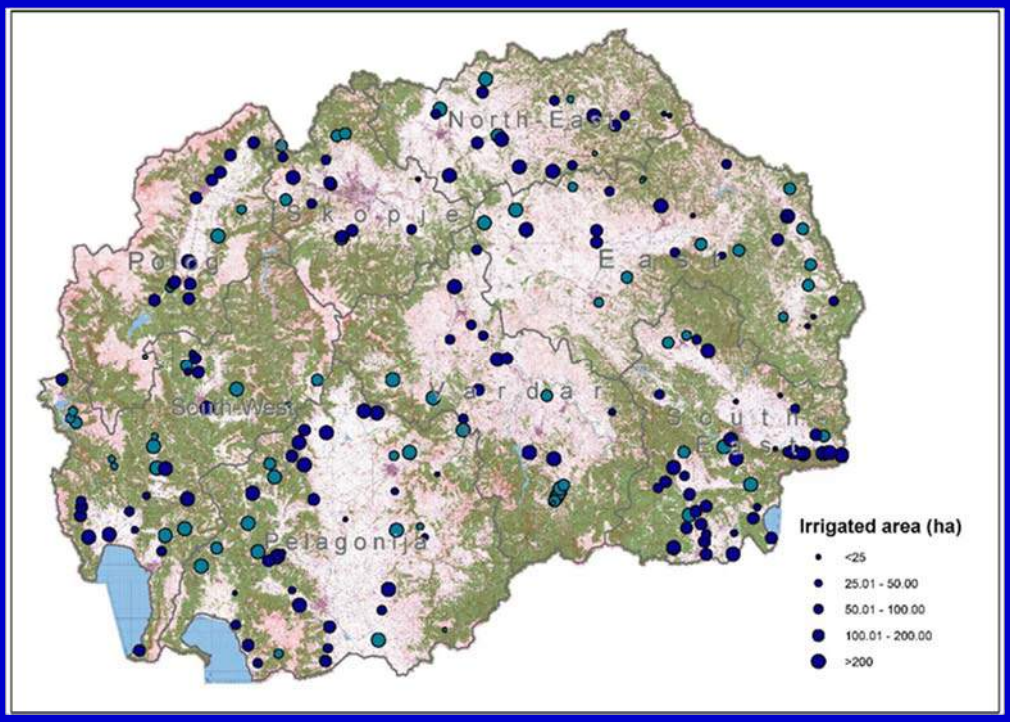
Small-scale, low-cost, environment friendly irrigation schemes: sites selection and preparation of full work tender dossier

EuropeAid/137393/DH/SER/MK

MINISTRY OF AGRICULTURE, FORESTRY AND WATER ECONOMY



SCREENING Report

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Project Name:	Small-scale, low-cost, environment friendly irrigation schemes: sites selection and preparation of full work tender dossier
Reference No:	EuropeAid/137393/DH/SER/MK
Contracting Authority:	European Union Delegation to the R. Macedonia
Beneficiary:	Ministry of Agriculture, Forestry and Water Economy (MAFWE)
Consultant:	Consortium: Eptisa – Temelsu – PointPro
Report:	Screening Report DRAFT

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LIST OF ABBREVIATIONS

Abbreviation	Full Text
AC	Asbestos-concrete pipes
AHP	Analytical Hierarchical Process
CR	Consistency ratio
DJK	Dovezence-Jachince-Klechovce
EU	European Union
ETO	Evapotranspiration
GDP	Gross Domestic Product
GIS	Geographical Information System
Ha	Hectare
HDPE	High-density polyethylene pipes
IPA	Instruments for Pre-Accession Assistance
IPARD	Instrument for Pre-Accession Assistance in Rural Development
JSC (WM)	Joint Stock Company (Water Management)
LPIS	Land Parcel Identification System
MAFWE	Ministry of Agriculture, Forestry and Water Economy
NARDS	National Agricultural and Rural Development Strategy
PVC	polymerizing vinyl chloride
REK	Rudarsko-Energetski kombinat (Coal Termal Power Plant)
ToR	Terms of Reference
WUA	Water User Association

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Project Name	Small-scale, low-cost, environment friendly irrigation schemes: sites selection and preparation of full work tender dossier
Reference No:	EuropeAid/137393/DH/SER/MK
Project Duration	28 months
Project Start Date	4th September 2017
Project End Date	4th January 2020

	Contracting Authority	**Beneficiary**	**Consultant**
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Key Stakeholders and Target Groups:	Target group	The main target groups are the farming communities whose lands will be provided with access to irrigation facilities.
	Beneficiaries	Ministry of Agriculture, Forestry and Water Economy (MAFWE) Joint Stock Company for Water Management (AD Vodostopanstvo) Municipalities and farmers organisations

Project's Results:	Result 1	Potential irrigation project sites to be identified, project sites to be surveyed and prefeasibility report to be prepared (at least 15-20 potential sites to be assessed). Feasibility studies to be prepared (at least 6-8 feasibility studies).
	Result 2	Detailed Technical designs of environmentally and economically efficient community based small scale irrigation scheme to be prepared and tender dossiers compiled (6- 8 sites).
	Result 3	Farmer groups established on each of the irrigation investment project site for which tender dossiers to be prepared (6-8 farmers groups). Farmers to be trained and capable to manage the small-scale irrigation scheme.
	Result 4	
	Result 5	Methodology for calculation of irrigation water tariff to be developed to achieve sustainability of community-based, small-scale irrigation systems managed by water users.

1 EXECUTIVE SUMMARY AND RECOMMENDATION

According to the Terms of Reference (ToR), the Screening Report should present:

- the pool of sites identified,
- the selection criteria elaborated, and
- the sites finally pre-selected for further preliminary assessment.

Based on desk search, site visits, consultation with the Beneficiary and different stakeholders, a pool of 201 sites has been identified (Annex 1 – Tables and Maps).

Based on criteria given in ToR and criteria previously consulted with Beneficiary, a list of 85 pre-selected sites for further preliminary assessment has been selected (Annex 2).

Based on preselected sites and agreed criteria, the Consultant is proposing 20 possible irrigation project sites to be studied at pre-feasibility level. According to ToR, pre-feasibility reports should be ready after the end of the 3-month inception phase.

Taking into account new developments of the project, in order to submit by September 2018 a set of detailed designs, tender dossiers and Terms of References for the Supervision Services for the investment sites to be funded by IPA II 2015 (3 million EUR), new tentative timetable is presented in Annex 3.

The Project Steering Committee needs to approve of the selected sites for the first set of design process in a very short period in order to optimize time and initiate speed start-up of the design by the Consultant.

2 PROJECT DESCRIPTION

According to the ToR, the overall objective of the project is to contribute to sustainable and inclusive economic, social and territorial development of the country and reducing regional disparities through the development of physical capital in rural areas.

The Purpose of this project is to contribute to increased competitiveness of the agriculture sector, to sustain farm incomes and mitigation of adverse effects of climate change in agriculture by promoting small-scale, low-cost, environment-friendly irrigation schemes.

These results and purpose will be achieved through:

- Selection of potential sites for investments in small-scale, low-cost, environment-friendly irrigation schemes to be included in the screening report.
- Conduct Pre-feasibility studies for 15-20 potential sites.
- Prepare Feasibility studies for 6 – 8 irrigation schemes.
- Provide Detailed Designs and Tender Dossiers for 6-8 irrigation systems purpose to utilize the available funds for investments under IPA II.
- Hold participatory consultation meetings to ensure that the farmers' needs are being met and that there is general awareness and acceptance of the project.
- Support the establishment of farmers groups which would manage the future small-scale irrigation systems.
- Provide support to MAFWE and other relevant institutions in priority setting and strategic planning of irrigation investment projects to contribute to the ongoing policy developments to transfer the responsibility for irrigation management to water users.
- Assist MAFWE to prepare methodology for calculation of tariff for irrigation water supply. support establishment of farmers groups which would manage the future small-scale irrigation systems

The geographical area to be covered is the entire territory of the country, as the sites will be utmost equally geographical/regional distributed.

The wider beneficiaries of the project are the farming community whose lands will be provided with access to irrigation facilities. According to the Land Parcel Identification System (LPIS) of the Ministry of Agriculture, Forestry and Water Economy (MAFWE), it is expected that there will be about 190 farmers for each selected site, thus 1500 farmers will increase their net income from farming and their local communities will also benefit from increased economic activity within the irrigation schemes.

The direct beneficiary is the MAFWE and the indirect beneficiaries are the JSC for Water Management, Municipalities and farmers organisations

3 NEEDS/BENEFITS OF THE PROJECT AND SUITABILITY OF THE PROPOSED ACTIONS

The Ministry of Agriculture, Forestry and Water Economy in the National Agricultural and Rural Development Strategy (NARDS) for the period 2014-2020 stated that the agriculture (including hunting, forestry and fishery) accounts for 8.9% of GDP in 2013. Despite the relative decline in the share of agriculture in gross value added in recent years, agriculture recorded an annual increase in absolute amount that keeps stable share of GDP to around 10% in the last 10 years. The stable development trend was maintained in terms of employment. Of the total active population in 2012, 17.3% of total employment is generated in agriculture. Of the total number of employees and persons engaged in the agricultural sector, 77% have an employed economic status as "unpaid family workers", full or part-time. The majority of employees (84%) belong to the age group of 25-64 years old. The average net wage in agriculture in 2012 amounts to MKD 15,641, or 5% increase from the net amount in 2011. In 2013, there was a significant increase in exports of agricultural food products, reaching a worth of over half a billion euros (504 million euros) for the first-time.

According to the analysis made for the period 1987-2000, the percentage of utilization of irrigation decreases. In 2013, about 22.7% of the installed capacity is used for irrigation. The low rate of capacity utilization is largely due to the obsolescence of irrigation, insufficient maintenance and reconstruction and thereof resulting in low recovery of water bills in terms of percentage of utilization of irrigated areas.

According to the current state of most of the irrigation and drainage systems in the country, their rehabilitation represents one of the key factors for increasing the efficiency of utilizing the systems and improving agricultural production. Although this process is a priority and inevitable to ensure the sustainability of irrigation and drainage, it should be given emphasis and investment in new systems and facilities, particularly where there is no coverage of irrigation and drainage.

3.1 POLICIES IN THE IRRIGATION SECTOR

Measures to improve the efficiency and sustainability of the current model of managing irrigation systems are aimed at further regulation of legislation and relations between water companies and water user associations. They also tend to improve the organizational and technical capacity of the water companies and water user associations, improving the state of infrastructure maintenance and facilities within the irrigation systems, improvement of the collection of water fees, introduction of database of users and surfaces to be irrigated within the irrigation systems.
(MAFWE,2014).

The overall strategy of the country for Pre-Accession (IPA) Rural Development Programme 2014-2020 is derived by linking the objectives of IPA II assistance under rural development programmes in policy area 'agriculture and rural development', and the needs for intervention identified in relation to irrigation are:

Objective 1. Enhancing farm viability and competitiveness of all types of agriculture and primary food-processing, while progressively aligning with the Union standards

Objective 2. Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry

Objective 3. Promoting balanced territorial development in rural areas
Measure "Improvement and development of rural infrastructure"

Objective 4 Transfer of knowledge and innovation in agriculture, forestry and rural areas and strengthening public administration capacity in implementation of rural development programmes.

3.2 THE CONTRIBUTION OF THE PROJECT TO THE GOVERNMENT'S GENERAL GOALS AND POLICY

The project agrees with the policies for the irrigation sector established in MAFWE, 2014, and it is a constituent of the 3rd Objective of the IPARD Programme, 2014, in particular the measure 'Improvement and development of rural infrastructure' that has a budget of 9,1 M € in the considered period.

3.3 REASONS FOR MAKING THAT ASSESSMENT

During the inception phase, there is a clear need to determine a pool of possible sites for irrigation development and establish a set of criteria to choose the most adequate irrigation schemes to be studied in more depth.

3.4 DESCRIPTION OF BENEFITS

Considering that the project will provide detailed designs and tender dossiers of 6 to 8 projects of around 270 ha in average, the irrigated area will be improved/increased for around 2200 ha and more than 1500 farmers will benefit.

MAFWE will have:

1. methodology for tariffs calculation for small scale irrigation systems operated by users,
2. evidence based prioritization of irrigation investments,
3. feasibility studies,
4. costing estimates and preparation of Bill of Quantities,
5. participatory management of small scale irrigation schemes,
6. reforms and activities to transfer the responsibility for water management to water users.

4 PROCESS OF IDENTIFICATION AND SELECTION OF IRRIGATION SCHEMES

4.1 DATA SOURCES AND GENERAL ASSESSMENT OF THE SITUATION IN IRRIGATION

During the process of identification of all possible irrigation schemes, the Consultant has used the following sources of information:

1. Plan of Activities of the Water Management Directorate 2015-2025, MAFWE, Skopje December 2014;
2. Terms of reference of this project;
3. Study on small reservoir dams, MAFWE, 1984;
4. Pre-Feasibility study of irrigation sites done by DSI Turkey, 2017;
5. Other sources as Municipalities' plans, and Consultant´s documentation;
6. Interviews with Authorities of the Joint Stock Company for Water Management branches;
7. Interviews with Municipal representatives;
8. Field visits.

In every field visit multiple possible sites were identified and after desk review of the available data 24 were chosen for on-field detailed visits. In the following table all the identified sites during the field visits are described.

The following meetings were realized during the screening phase:

Date	Municipality visited	Branch name/ Area/ Dam:	People involved
19.09.2017	Strumica	Strumichko Pole; Chaushliska Dam; Vasilievo -Dobrejci, Novoselsko; Other small existing schemes (Bansko, Kolishimo, Mokrievo, etc)	Stojan Georgiev, Gjorgji Nacev
20.09.2017	Probishtip	Bregalnica Pole, Pishica, Blatec 1 and 2;	Jane Atanasov, Zoran Belicev, Gorgi Tusevski
20.09.2017	Delchevo	Public utility for communal services; Loshana, Petrasevsko;	Darko Gocevski
26.09.2017	Kriva Palanka	Konopnica, Mozdivnjak;	Martin Petkovski, Velinche Angelovski
27.09.2017	Gostivar	Kolibari, Crvevci, Mamudovci, Banjica;	Nasir Hasip, Pajtim Saiti
04.10.2017	Bitola	Strezhevo, Gabalavci, Sekirani, Kazhani, Suvodolsko/Novaci.	Ilija Grujoski
10.10.2017	Kumanovo	Kumanovsko-Lipkovsko Pole, Dovezence-Jachince-Klechovce (DJK), Studena vara, Shupliv kamen.	Filip Filipovski
12.10.2017	Prilep	Prilepsko pole, Podmol	Gordana Toshevska
24.10.2017	Sveti Nikole	Mavrovica	Goran Arsov
24.10.2017	Rankovce	Slavishko Pole	Goran Petkovski
24.10.2017	Konche	Konche	Vlado Iliev

24.10.2017	Novo Selo	Drazhevo	Petar Kostadinov
25.10.2017	Kavadarci	Tikvesh, Dabnichka Reka	Ljube Dimov, Risto Manev
25.10.2017	Dojran	Toplik	Ivan Vangelov
25.10.2017	Valandovo	Grchishte	Dushica Jovanova
25.10.2017	Veles	Podles	Risto Manev
26.10.2017	Tetovo	Dzhepchishte	Faradin
26.10.2017	Kichevo	Zajas 2	Vedat Ahmedi
26.10.2017	Debarca	Velmej	Goce Cvetkovski
27.10.2017	Desovo	Dolneni	Gordana Toshevska, Nikola Nastoski
01.11.2017	Tetovo	Tearce	Besim Imeri
01.11.2017	Bogdanci	Selemli	Ivan Vangelov, Aleksandar Kjirikj
01.11.2017	Gostivar	Banjicko Pole	Nasi Hasip, Pajtim Saiti
14.11.2017	Kavadarci	K-36	Risto Manev

24 technical visits were carried out and 22 meetings with farmers on the preselected sites according to the following list:

Number of meeting	Date	Irrigation Location Visited	Area
1	30.10.2017	Zajas 2	South-West
2	30.10.2017	Kolibari	South-West
3	31.10.2017	Slavishko Pole	North-East
4	31.10.2017	Konopnica	North-East
5	01.11.2017	Dam Mavrovica	East
6	01.11.2017	Dam Pishica	East
7	02.11.2017	Banjichko Pole	Polog
8	02.11.2017	Velmej	South-West
9	03.11.2017	Dovezance-Jacince-Klechovce	North-East
10	03.11.2017	Tearce	Polog
11	06.11.2017	Dam Konche 3 and 1	South-East
12	06.11.2017	Dabnicka reka	Vardar
13	06.11.2017	Podles	Vardar
14	08.11.2017	Suvodolsko	Pelagonija
15	08.11.2017	Desovo	Pelagonija
16	09.11.2017	Chaushica Dam	South-East
17	09.11.2017	Drazhevo	South-East
18	09.11.2017	Vasilevo-Dobrejci	South-East
19	10.11.2017	Selemli	South-East
20	13.11.2017	Gabalavci	Pelagonija
21	14.11.2017	K36	Vardar
22	14.11.2017	Grchishte	South-East

Part 4.5 Site investigation findings includes 20 field visits reports. The followings irrigations schemes were visited but the reports are not included for the following specified reasons:

Irrigation project	Reason for exclusion of this location
Velmej	Too high water-availability. Only maintenance intervention needed. Low interest of farmers. High migration of young members of the community.
Toplik	Dam and reservoir are both surrounded with low electricity wire fence and appears to be under private concession. It is not community based (lands from the Combinate is not distributed to local villagers).
Podles	50% of the area belongs to a private owner. Only maintenance intervention is needed. Water not available to increase the irrigated area.
Dzepchiste	This location gets water from HMS Radovica-Bistrica main canal. The availability of water depends on the rehabilitation of this main canal. It is out of this projects scope.
Podmol	It was new dam. The investment needed was between 6-20 mil EUR and it is outside this project scope.

In general, it can be concluded that the existing information about existing irrigation schemes such as blue prints, maps, water measurements, is inexistent in most of the identified systems. Hydrological data of river flows is also not available; even constructed dams which had been repaired recently do not have information about inflows and discharges released. In the country there are about 25 gauging stations with recent information about discharges.

The Consortium will have to replace the missing information by means of rainfall-runoff simulations models and other indirect or empirical assumptions to replace the lack of registered data.
Most existing irrigation projects were constructed in early 1960-70 and the lack of financial sources for maintenance lead to a situation of deterioration that reduced the efficiency, operation and even some are completely out of function. Also, undefined legal issues of systems´ administration prevented their operation at reasonable standards.

During the meetings with farmers, the technical information collected during the previous visits was checked, and also information was gathered about cropping patterns, market placement problems, ownerships of land, migration, actual management and willingness to manage the system, problems with the existing systems and alternative technical solutions.

The farmers in general showed high support and interest for the realization of the irrigation systems.

Reports from meetings with farmers are listed in Part 4.6 of this Report (Socio-economic findings and willingness of water users to cooperate in managing the schemes), while the attendance lists are enclosed as Annex 4.

4.2 IDENTIFICATION OF SUITABLE IRRIGATION AREAS (POOL OF 200 SCHEMES) BASED ON THE ANALYTICAL HIERARCHY PROCESS

From the above-mentioned sources of information, a large pool of 201 potential sites for investments in small-scale irrigation schemes was identified, which are listed in Annex 1, organized by 8 regions: East, North-East, Pelagonija, Polog, Skopje, South-East, South-West and Vardar. We should note that names of some systems could differ from the names used by local communities.

In order to assist policy makers in the making of a reliable decision on where to extend or build new irrigation networks, the Consultant selected methodology of combining one of the most popular multi-criteria tool, analytic hierarchy process, and GIS.

Unlike some methodologies where the decision-making matrix makes the comparison of all criteria together, in this case the key factors on the selection of optimal locations were divided into groups according to their nature and role in decision-making process, and a comparison matrix is formed separately for each factor in order to avoid their incompatibility.

However, the GIS-aided identification methodology presented is flexible as far as the criteria determination is concerned. Thus, it is quite easy to expand and improve the methodology by taking into account other or include more parameters considering data availability.

These potential sites were scored according to the methodology described below:

4.2.1 INTRODUCTION TO METHODOLOGY

The applied methodology for selecting a suitable location for building new or restoration of the existing irrigation scheme in the country is based on a combination of GIS and Analytical Hierarchical Process (AHP) and consists of the following steps:

1. Defining the Problem;
2. Identification of key experts and stakeholders in the decision-making process and the definition of criteria for assessing the location suitability;
3. The collection and preparation of data (digitization, statistical analysis, etc.) and creation of raster data for each factor;
4. Classification of data sets and forming the suitability map for each factor (criterion limit);
5. Establishment of a preference matrix, assigning preference values to the relevant criteria using Saaty's scale;
6. Calculation of weighted factors of the criteria;
7. Weighting of maps and their summing up in the map of suitability;
8. Creation of map-factors constraints;
9. Calculating the result raster (final suitability map) as a weighted summation of all criteria raster data sets and applying constrain mask.

Factors that have been identified as crucial in the process of selecting a suitable location for building new or restoration of the existing irrigation scheme in Republic of Macedonia on the basis of expert knowledge and previous experience are divided into two types, based on the nature and the role they play in the decision-making process: criteria and constraints (restrictions). The factors are grouped into four basic factor groups: Socio-economic, Climate, Geo-morphological and Geo-natural factors.

To each of the criteria different score (rank) on a scale of 1 (Unfavourable locations) to 9 (Most suitable locations) was assigned in accordance with the experience of experts involved in the evaluation and literature. The scores are described in Table 1.

Factor group	Criteria	Range	Rank
Climate	Eto (mm)	>900	9
		800-900	7
		700-800	5
		600-700	3
		<600	1
	Precipitations (mm)	<600	9
		600-700	7
		700-800	5
		800-900	3
		>900	1
	Climate changes (temperature ˚C)	<1.8	3
		1.8-2	5
		>2	7
Economy	Farmer density (per ha)	>2	9
		1.5-2	7
		1-1.5	5
		0.5-1	3
		<0.5	1
	Distance from markets (km)	<5	9
		5-10	7
		10-20	4
		20-30	3
		>30	1
	Unemployment rate	>30%	9
		25-30%	6
		20-25%	3
		<20%	1

	Income (per ha)	>45000	9
		35000-45000	6
		25000-35000	3
		<25000	1
Geo-Morphology	Slope (°)	0–3	9
		3–10	8
		10–20	6
		20–30	4
		30–89	2
	Elevation (m)	50–200	9
		200–500	7
		500–800	4
		800–1200	2
		>1200	1
	Aspect	SW	9
		S, SE	9
		E,W	5
		NW, NE	3
		N	1
Geo-Natural	Distance from intake (m)	<1000	9
		1000-3000	7
		3000-5000	5
		5000-6000	3
		>6000	1
	Soil characteristics (texture)	Fine loamy to coarse loamy	7
		Coarse loamy	5
		Gravel loamy to coarse loamy	3
		Gravel loamy	2
		Gravel loamy to loamy skeletal	1
	Erosion	<1000	9
		1000-2000	7
		2000-3000	5
		3000-4000	3
		>4000	1

Table 1. Score (rank) on a scale of 1 (Unfavourable locations) to 9 (Most suitable locations)

4.2.2 METHODOLOGY AND RESULTS

Combination of GIS and AHP is applied for the evaluation of the land suitability for building new or restoration of the existing irrigation scheme in Republic of Macedonia. To evaluate the land suitability, 13 criteria grouped in four factors group were used: Socio-economic (Farmer density per ha, distance from markets, unemployment rate and Income per ha), climate (including Eto, precipitation and climate change of temperature for mean scenario in year 2045), geo-morphology (slope, elevation and aspect) and geo-natural (distance from intake, soil texture and erosion potential).

The AHP is a widely accepted decision-making method which is used to determine the relative importance of the criteria in a specified decision-making problem. One of the most crucial steps in any multiple criteria problem is the accurate estimation of the relevant data. Although qualitative information about the criterion importance can be found, it is difficult to quantify it correctly. The AHP method proposed by Saaty (1980) is an effective approach to extract the relative importance weights of the criteria (Saaty, T.L. 2008). The AHP is based on pairwise comparisons, which are used to determine the relative importance of each criterion (Themistoklis et al. 2005).

Intensity of importance	Definition	Explanation
1	Equal importance	Two factors contribute equally to the objective
3	Somewhat more	Experience and judgement slightly favors one over the
5	Much more important	Experience and judgement strongly favors one over the other
7	Very much more important	Experience and judgement very strongly favors one over the other. Its importance is demonstrated in practice.
9	Absolutely more important.	The evidence favoring one over the other is of the highest possible validity.
2,4,6,8	Intermediate values	When compromise is needed

Table 2. The Saaty Rating Scale

These pairwise comparisons are carried out for all factors to be considered, and the matrix is completed Pairwise Comparison Matrix (PCM). The next step is the calculation of the relative weights, importance, or value, of the factors, which are relevant to the problem in question (technically, this list is called an eigenvector). Saaty (1980) proposes the estimation of the right principal eigenvector of the PCM which can be approximated using the geometric mean of each row of the PCM (by multiplying the elements of each row and then taking the nth root, where n is the number of criteria). This mode is known as multiplicative AHP and was used in the present work. The calculated geometric means are then normalized, and the relative importance weights are extracted. The final stage was to calculate a Consistency Ratio (CR) to measure how consistent the judgements have been relative to large samples of purely random judgements. If the CR is much in excess of 0,1 the judgements are untrustworthy because they are too close for comfort to randomness and the exercise is valueless or must be repeated. Based on the results shown in the following table, it was confirmed that the Socio-economic and Climate factors were considered as more important factors in the selection of appropriate site than Geo-Morphological and Geo-Natural factors.

Values of degree of consistency, named as consistency ratio (CR) for all comparisons are calculated and have a value of less than 0.1, indicating the consistency of the obtained results.

Matrix comparisons and weight value elements are shown below and in the following order: Locational suitability for building new or restoration of the existing irrigation scheme (A) Factor group (B1 - B4), Criterion (C1-C13) and weight (W). Firstly, pairwise comparison was done in between factors in each group;

		Factor group		Criteria	Weight
A	**B1**	Socio-economic factors	C4	Farmer density	0.421
			C5	Distance from markets	0.053
			C6	Unemployment rate	0.421
			C7	Income per ha	0.105
	B2	Climate factors	C1	ETo	0.557
			C2	Precipitation	0.320
			C3	Climate changes (temperature ˚C)	0.139
	B3	Geo-Morphology factors	C8	Slope (°)	0.589
			C9	Elevation	0.159
			C10	Aspect (Direction of dominant winds)	0.236
	B4	Geo-natural factors	C11	Distance from intake	0.354
			C12	Soil characteristics (texture)	0.556
			C13	Erosion	0.152

Table 3. Weight value of criteria

Secondly the pairwise comparison was conducted on the level of factor groups.

Based on the results shown in the following table, it was confirmed that the Socio-economic and Climate factors were considered as more important factors in the selection of appropriate site than Geo-Morphological and Geo-Natural factors.

Table 4. Matrix comparisons with rate value for factor groups and their weight (relative importance)

	B1	B2	B3	B4	Eigen vector (weight)
B1	1	2	5	5	0.498
B2	0.5	1	4	4	0.316
B3	0.2	0.25	1	2	0.110
B4	0.2	0.25	1/2	1	0.077

The final suitability map is shown in Figure 1:

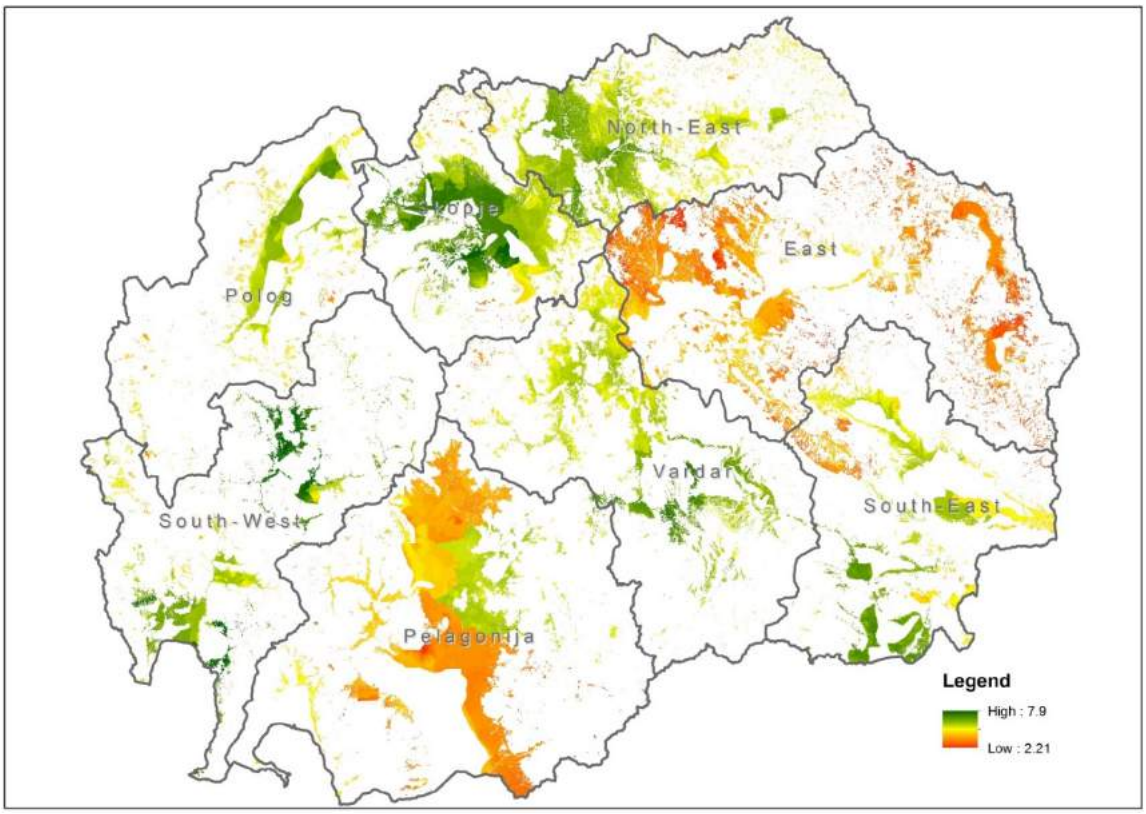


Figure 1. Suitability map of possible sites

4.3 FURTHER SELECTION PROCESS

After thorough consultation with MAFWE, a set of criteria was agreed for further selection of approximately 80 possible locations.

1) The irrigation area according to the ToR should be less than 300 Ha. It was agreed that the irrigated area in some particular case can be higher than 300 Ha, if it is appraised that positive beneficial impacts are from significant importance.

2) The second criteria would be based in socio economic bases, such us:
   a. The number of farmers. In existing irrigation schemes, it would correspond to registered farmers at MAFWE, and for new schemes the expected number of beneficiary farmers
   b. The scheme should be community-based
   c. Income per hectare, and
   d. Unemployment rate.

3) The third criteria is that the scheme could be constituted by one to several villages, but only in one Municipality;

4) The fourth criteria would be that schemes that involved the construction of a new dam would be avoided in most cases, considering there are several existing dams without an irrigated

area, and that the construction of a new dam will implicate a high investment compared to the construction of the irrigation scheme in existing dams.

5) The fifth criteria is the equal distribution in the entire territory of the Republic.

The criteria included in the ToR stating that the proposed scheme should not be in the framework of the large hydro-melioration scheme should not be consider excluding an potential irrigation site with high beneficial impact, from the possible 80 locations, as far as it could have an independent water management that can be assumed by the farmers, supported with relevant legislation framework.

The result of the application of the above-mentioned criteria is shown in Annex 2 and lead to a list of possible 20 locations.

4.4 RECOMMENDATION OF SITES SUBJECT OF PRE-FEASIBILITY REPORT

From the Consultant point of view, and based on the information obtained from data available, interviews and site visits, the list of selected 20 irrigation projects is presented below:

South-West:

1. Zajas 2, Kichevo Municipality (250 ha)
2. Kolibari, Kichevo Municipality (300 ha up to 500 ha)

North-East region:

3. Slavishko Pole, Rankovce Municipality (290 ha)
4. HMS Dovezence-Jachince-Klechovce, Kumanovo Municipality (300 ha)
5. Konopnica, Kriva Palanka Municipality (150 ha)

East region:

6. Dam Mavrovica, HMS Bregalnica, Sveti Nikole Municipality (300 ha).
7. Dam Pishica, Probishtip Municipality (300 ha).

South East:

8. Selemli, Bogdanci Municipality (300 ha)
9. Grchishte, Valandovo Municipality (300 ha)
10. Chaushliska, Bosilovo Municipality (100 ha)
11. Drazhevo, Novo Selo Municipality (200 ha)
12. Vasilevo-Dobrejci, Vasilevo Municipality (*HMS Vodoca dam*) (300 ha up to 400 ha)
13. Dam Konche 3 and 1, Konche Municipality (100 ha)

Vardar:

14. K36, HMS Tikvesh, Veles Municipality (370 ha)
15. Dabnichka reka, Kavadarci (300 ha)

Pelagonija:

16. Suvodolsko, Novaci Municipality (300 ha up to 600 ha)
17. Gabalavci, Bitola Municipality (*HMS Strezhevo dam*) (300 ha)
18. Desovo, Dolneni Municipality (280 ha)

Polog:

19. Tearce, Tearce Municipality (300 ha)
20. Banjichko Pole, Gostivar Municipality (150 ha)

The Consultant undertook several site investigations to assure that list of the 20 potential sites is eligible in terms of fulfilling the criteria given in ToR.

Chapters 4.5 and 4.6 are presenting findings in this respect.

4.5 SITE INVESTIGATION FINDINGS

FIELD VISIT REPORT: ZAJAS 2 IRRIGATION SYSTEM				1
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
26.10.2017	Kichevo	none	Vedat Ahmedi (representative of Zajas Cuma)	Zajaska/Tajmishka River
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
40 Ha	Open canals	Enough.	no dam	Not available
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
250 ha	3 km	More than 100	High	no
Intake/Reservoir description / Problems:	The Government reconstructed the concrete intake structure in 2016 intake and it is in very good condition. There is a fish pass.			
Irrigation system description / Problems	The intake structure is followed by an open main canal having total length of 3km, of which only 80m at the beginning is concrete lined. First part of irrigation scheme takes place in urban area. Only 30-40ha irrigated in recent years. Farmers have average 0.5ha land for agriculture. These small plots do not generate enough income to cover existential costs and that is one of the reasons that irrigation use is low. The system does not operate properly, and water does not reach to the end of canal due to lack or inappropriate maintenance, as can be seen from the photos.			
Proposed intervention	The intake structure does not need any rehabilitation. Existing open canals need to be lined. Since canals go through settlement areas and receive sewage, an alternative using pipes. And pressurized will be evaluated.			

Photos:

Intake structure

Intake structure downstream

Main canal

Main canal road x-ing and turnout gate

FIELD VISIT REPORT: KOLIBARI IRRIGATION SYSTEM				**2**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
27.09.2017	Kichevo	no	Nasir Hasip	Zajaska/Tajmishka River
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
150 Ha	Gravity	Shared with Zajas		
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
500 Ha		>100	Very high	no
Intake/Reservoir description / Problems:	The intake should be repaired. The quality and quantity of water seems no to be a limitation. Zayas system is taking water from the same river, therefore the water availability should be analysed as one system.			
Irrigation system description / Problems	There is a main earth canal in bad condition and should be replaced by a pipe or repaired. Farmers prefer pipes to provide pressurized service. They will change crops to get more profitability if they have more water			
Proposed intervention	The open canal should be replaced by pipes and pressure provided by pumpus if the elevation between intake and plots does not allow a pressurized system without pumping for most the irrigated area.			

Photos:

Intake at Zajashka river

Beginning of main canal

Main canal along Kolibari Village streets

Irrigated and urban plots in Kolibari Village

Final portion of main canal an irrigated area

FIELD VISIT REPORT: SLAVISHKO POLE IRRIGATION SYSTEM				**3**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
24.10.2017	Rankovce	none		Kriva Reka
Irrigated Area	**Pressurized/ gravity syst**	**Water availability**	**Dam useful volume**	**Existing studies**
40 Ha	Gravity	Yes	No dam	no
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
290 Ha	Main 1,1 km 2º left 0,8 km 2º right 0,8 km	250	Very high	There was a WUA
Intake/Reservoir description / Problems:	The intake is a loose rocks diversion weir in the river. The quality and quantity of water seems no to be a limitation.			
Irrigation system description / Problems	There is a main earth canal of 1,1 km that splits in two canals one to the right 0,8 km and left 0,8 km. Both canals continued at both sides of the road, but other pipes were placed in the canals and sometimes they were covered, or trees have grown, so they are not able to be used anymore.			

Proposed intervention	The elevation between intake and plots allows a pressurized system without pumps for most the irrigated area. The intake can be displaced upstream the current location to provide pressurized system to all the area. A pipe to each side of the road will provide pressurized system for all plots and some secondary pipes will be added to reach all needed hydrants.

Photos:

Intake at Kriva Reka and beginning of main canal

Main canal beginning from intake

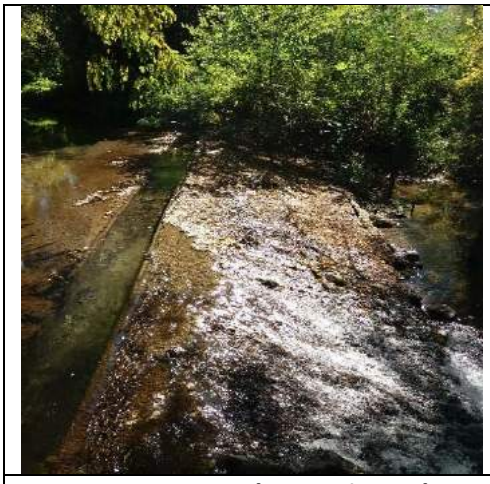
Main canal divides in 2º left and right canals

Left side canal along the road

Right side canal along the road

FIELD VISIT REPORT: DOVEZENCE-JACHINCE-KLECHOVCE IRRIGATION SYSTEM				4
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
10.10.2017	Kumanovo	Kumanovsko Pole	Filip Filipovski	Kriva Reka
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
30 Ha	Gravity	Low	No dam	Reparation design
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
300 Ha		100	high	There was a WUA
Intake/Reservoir description / Problems:	The intake is a diversion weir on one branch of the river. In august the water can be non-existent according to farmers, but the WMC says there is no water shortage and provides measured minimum discharge 1961/2005 0,13 m3/s.			
Irrigation system description / Problems	There is a main canal concrete pipe 600 mm. which gets full of plants roots. Secondary canals open canals. Market problems			
Proposed intervention	The elevation between intake and plots does not allows a pressurized system. A pump station should be constructed to provide pressurized service. The alignment should be the current one			

Photos:



Intake at Kriva Reka

Branch of Kriva Reka

	
Field intake	**Field Intake**

FIELD VISIT REPORT: KONOPNICA IRRIGATION SYSTEM				**5**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
26.09.2017	Kriva Palanka	none	Velince Angelovski	Selska Reka
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
0 Ha				
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
150 Ha		200	Very high	no
Intake/Reservoir description / Problems:	The area has no irrigation system. They irrigated household orchards with drinking water			
Irrigation system description / Problems	There are community based fields that have no water for irrigation. Emigration is not a preferred option, so there are a lot of unemployed people waiting to put their fields in production			
Proposed intervention	Construct intakes in the existing sediment retention dams in Selska river and lay pipes following roads and ridge or crest lines. The limitation is the water available. In the visit it was 70 l/s, enough for 150 ha. Should be checked by hydrological estimations based on precipitation			

Photos:

First sediment retention dam

Available water (100l/s) as 26/09/17

Water supply intake

Second sediment control dam

FIELD VISIT REPORT: MAVROVICA IRRIGATION PROJECT				**6**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
24.10.2017	Sveti Nikole	Bregalnica JSCWM	Vlado Ivanovski, Goran Arsov	Mavrovica Dam
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
0 Ha in the area visited	High pressurized	Dam storage		Not available
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
300 ha	Main pipe line Ø 560, L=6.2 km	200	High	

Intake/Reservoir description / Problems:	Earth fill dam 28 m high constructed in 1982. Dam`s upstream face is lined with concrete plates. Some of them are being replaced. Spillway and bottom outlet are under rehabilitation. Rehabilitation works are financed by EU. The dam was originally designed for irrigating 1,000 ha area and water supply to Sveti Nicola. But at present irrigation scheme is constructed only for 300 ha and the dam is serving only for irrigation. Dam has no stability problem. Free spillway of the dam is operating almost every year.
Irrigation system description / Problems	The project is a part of HMS Bregalnica. Irrigation system has 6.2 km long steel pipe having 560 mm diameter after the bottom outlet. At Km 3 there is a 400 m long AC pipe branch to the right and then another AC pipe 800 m long to reach to irrigation area. Last 3.2 km of the main steel pipe supplied water to Sveti Nicola, which was not used in recent years. It should be checked if the steel pipe has cathodic protection. About 250-300 ha area irrigated mainly by drip irrigation in the project area. 100 Euro/ha/yr is paid as a water charge for vineyard.
Proposed intervention	Rehabilitation of the existing system and increase of irrigation area by 200-300 more depending on the water availability is required A new alignment for main pipeline from bottom outlet to the irrigation area having a length of 2.5-3 km at both sides of the road and pressurized irrigation scheme with hydrants and water meters will be convenient for the project.

Photos:

Mavrovica dam

Mavrovica dam

Mavrovica dam

Mavrovica dam upstream face

	
Hydrant	**Spillway**
	
Spillway construction	**Replaced new valves**

FIELD VISIT REPORT: PISHICA DAM IRRIGATION SYSTEM				**7**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
20.09.2017	Probishtip	Bregalnichko Pole	Jane Atanasov, Zoran Belicev, Gorgi Tusevski	Pishica Dam
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
70 Ha	Gravity/pressure	Dam storage	740.000m3	Reparation design
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
300 Ha		75	High	WUA existed
Intake/Reservoir description / Problems:	The reservoir was overtopped, and it is being repaired. The spillway has a sky jump at the end poorly designed			
Irrigation system description / Problems	Some houses receive technical water from a pipe from the irrigation outlet. There is one unlined irrigation canal from the irrigation outlet.			
Proposed intervention	Replace the unlined canal by distribution pipes to provide pressurized irrigation water to the feasible area according to checked available water			

Photos:

New lateral spillway, reservoir and Pishica Dam

Lateral Spillway: Sky jump and stilling basin

Reparation weir crest. Poor concrete. Narrow spillway canal

Bottom outlet exterior

Irrigation outlet exterior

Irrigation outlet valves

Downstream Pishica dam. Irrigation canal begin from irrigation outlet.

FIELD VISIT REPORT: SELEMLI IRRIGATION PROJECT				8
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
01.11.2017	Bogdanci	no	Ivan Vangelov, Aleksandar Kjirikj	Selemli Dam
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
200		Dam storage	800.000 m3	NA
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
300 ha	-	20	Very high	No. Can be formed
Intake/Reservoir description / Problems:	Selemli Dam and irrigation system were constructed by Governmental Organization (Combinat) in 1960`s -1970`s to irrigate an area of about 250 ha. In 1990`s it was bankrupt and collapsed. Dam body has no stability problem. There are brushes on upstream and downstream faces of the dam to be removed. Dam has an uncontrolled lateral spillway which needs rehabilitation. It seems that spillway is not working long time although there is limited water use from the reservoir. There is a house at the downstream toe of the dam for bottom outlet and pump station to supply water for pressurized irrigation scheme and it is not used since more than 20 years.			
Irrigation system description / Problems	Irrigation scheme was constructed by Combinat together with a pressurized pipe network, but it is not used since 1990`s. Since water in the reservoir is not used for the downstream areas, it is used by farmers having lands upstream of the reservoir by individual pumps and up to 3 km pipes. There is a transformer at the side of the reservoir to give electricity to some of the pumps and some pumps are diesel pumps. This project is also under the land consolidation project of FAO to distribute the plots that belong to the Combinat.			
Proposed intervention	The availability of water should be checked. These years 1/3 of the dam volume was not used after the cropping season, although it was not full after rainy season. If old Combinat areas are given to farmers water may not be enough, but at present there are no farmers in these areas. On the other hand, there are interested farmers upstream the reservoir. If water is to be provided to them, a floating pump station(s) needs to be constructed, or one from the bottom outlet.			

Photos:

	
General layout of the reservoir	**Dam and spillway intake**
	
Spillway	**Spillway**
	
Existing private pump stations	**Area to be irrigated and Selemli village**
	
Bottom outlet and PS, downstream face	**When reservoir if full (from Google)**

FIELD VISIT REPORT: GRCHISHTE PROJECT				9
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
25.10.2017	Valandovo	No	Ms. Kostanda Tsamadjieva, Ms. Dushica Jovanova	Vardar River
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
150 Ha	pressurized	high	No dam	Feasibility study report.
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
300 ha		300	Very high	Can be formed
Intake/Reservoir description / Problems:	New Grchishte project was a part of "Irrigation Programme Southern Vardar Valley" project financed by KCW. Due to certain reasons this project removed from that large project. New project developed to irrigate 150 ha area from Vardar River by drilling wells along the right bank of the river.			
Irrigation system description / Problems	At present farmers irrigated by several boreholes in each plot. It would be better to have a proper irrigation scheme for the farmers. There is a big private property of more 200 ha that is not currently using irrigation.			
Proposed intervention	Three boreholes and a pumping station should impulse water to a higher reservoir (if there is a feasible location for this) and from the reservoir an irrigation system with pressurized HDPE pipe system with hydrants and water meters should provide service to private own lands.			

Photos:

Irrigation area

Irrigation area

FIELD VISIT REPORT: CHAUSHLISKA DAM IRRIGATION SYSTEM				10
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
19.09.2017	Bosilovo	Strumichko Pole	Stojan Georgiev, Gjorgji Nacev	River Hamzali Chaushliska dam
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
0 ha upstream Turija canal		Dam storage	130.000 m3	none
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
100 Ha		200	medium	no
Intake/Reservoir description / Problems:	The dam and spillway are in good condition. The Valves house has no roof and door. The valves are closed, in bad maintenance condition.			
Irrigation system description / Problems	The outlet discharges water to the river, irrigation system has never been constructed.			
Proposed intervention	There are 2 villages (Drvosh 30 ha, Chanaklia 40 has and a big private farmer company – Agrolozar, interested in using the reservoir. The project should repair the outlet valves, construct main and distribution pipes to provide pressurized irrigation water. The volume is small, the irrigated area should be developed accordingly. Chanaklia village seems rather far to be considered.			

Photos:

Reservoir

Dam and spillway

Valves house

Oulet valves

FIELD VISIT REPORT: DRAZHEVO PROJECT				11
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
24.10.2017	Novo Selo	Strumichko JSC	Petar Kostadinov	Jama/Badelska Reka and Preslap/Selska reka
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
70 ha	Gravity	Low	215,000 m^3	Feasibility Report
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
More than 200 ha	-	100	Very High	
Intake/Reservoir description / Problems:	Preslap River water diverted by an open canal to Yama River. There is no permanent intake structure on both rivers. System constructed in 1960`s. System is very old and need to be replaced.			
Irrigation system description / Problems	Irrigation system is also constructed in 1960`s and very old. Some part of the existing irrigation system is renewed by Swiss fund. Project was designed for 240 ha irrigation area but only 70-80 ha is irrigated.			
Proposed intervention	A new project is prepared by Water Association "Preslap", Village Drazhevo, Novo Selo Municipality to irrigate 250 ha. Three alternatives are studied 1) collecting waters of 4 rivers by a conveyance canal having irrigation, 2) constructing 2 small dams to regulate waters of these rivers and 3) receiving water from Strumica river by wells along its bank and having pumped irrigation. Farmers want the second alternative, but could be out of the scope of this project. Last to alternatives will be compared in the project.			

Photos:

	
Canal	**Canal**

FIELD VISIT REPORT: VASILEVO – DOBREJCI IRRIGATION SYSTEM				12
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
19.09.2017	Vasilevo	Strumichko Pole	Stojan Georgiev	River Strumica and Vodocha Dam
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
60 Ha using pumps	gravity	Dam storage	26 Hm3	Detailed design
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
400 Ha		200	high	no
Intake/Reservoir description / Problems:	Originally the system had an intake in Strumica river. Then the system took water from a stilling basing at the end of a pressure pipe.			
Irrigation system description / Problems	The main canal fed secondary concrete funnels that are destroyed. The main canal is contaminated with sewage water. The farmers irrigate by pumping from wells.			
Proposed intervention	To continue the pressure pipe that reaches the stilling basing with the construction of a main and distribution pipes to provide pressurized irrigation water. The efficiency and management of the main canal from Vodocha dam should be increased to ensure water availability.			

Photos:

Stilling basin at end of pressure pipe

End of pressure pipe

Exit from Basin and exit to canal

Main canal

FIELD VISIT REPORT: KONCHE 1 and 3 IRRIGATION SYSTEM				13
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
24.10.2017	Konche	Radovishko WMC	Vlado Iliev, Dragan Chachapov, Vane Skubev	1 main creek (Koreshovec) and 3 other diversions from 3 minor creeks to the system.
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
20 ha	Low and high pressurized	Dam storage	220,000 m^3	Not available
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
100 ha	-	70	high	-
Intake/Reservoir description / Problems:	There are 2 cascade dams (upstream dam Konche 3 and downstream dam Konche 1) constructed in 1960`s (3 dams are designed originally but only dam 1 and dam 3 are constructed). Both dams are earth fill and their spillways are lined with concrete. Spillways of both dams needs rehabilitation and construction. Dams have no stability problem. There was a stability problem in dam 3 about 25 years before but it is solved by constructing a drainage layer at the downstream of the dam body and because of that dam 3 has 2 bottom outlets which both totally are not operating properly. To transfer the water from dam 3 to dam 1 farmers transfer water from dam 3 to dam 1 by siphoning and pumping. There are three diversion systems from another river (there is no reservoir on that river) parallel to the river which Konche where dams take place. One of the diversion system supply water to the reservoir of dam 3 and two others supply water to the main irrigation pipeline. Intake structure and conveyance canal (some part is used as a road) of the first diversion system are totally in bad condition.			
Irrigation system description / Problems	Irrigation scheme is pressurized PVC and AC type pipes and deteriorated. Some part of the irrigation scheme pipes is rehabilitated in 1980`s. It is stated that project is designed for 100 ha but recent years only about 20 ha is irrigated. Willingness is very high. Main crop is tobacco and the water charge are 120 - 250 Euro/ha/yr.			
Proposed intervention	Concrete spillways of both dams need rehabilitation and construction. Bottom outlets of both dams need rehabilitation/reconstruction and valves to be changed. For the first diversion system supplying water to the reservoir needs an intake structure and pipeline to divert water to the reservoir of Konche 3 (at present water is flowing through the earth road). Intakes structures of other two diversions to be rehabilitated or reconstructed and should have stilling basin since they are supplying water directly to the pipeline (if formulation is not changed during the feasibility studies).			

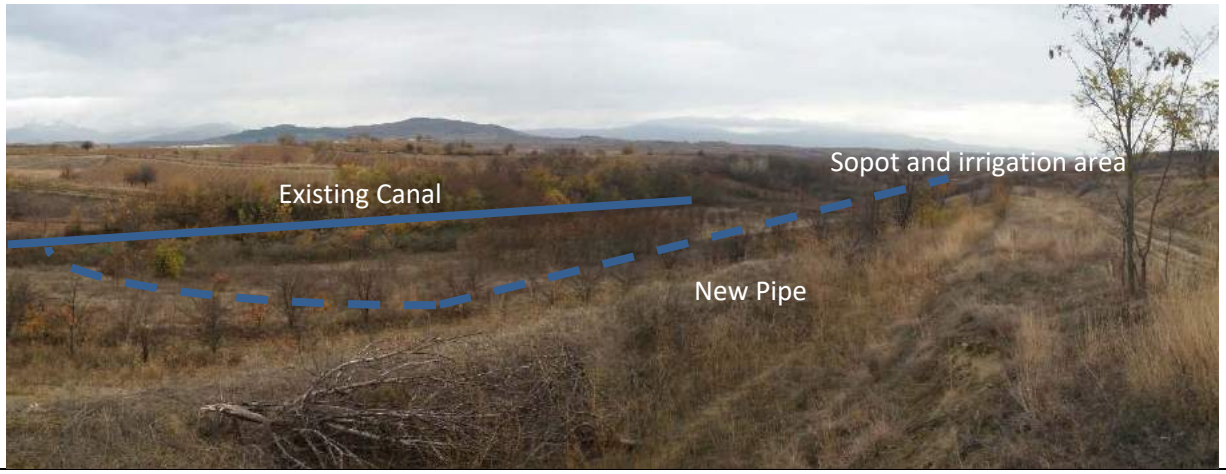
Photos:

	
Dam and reservoir of Konche 3	**Dam Konche 3**
	
Reservoir of Konche 3	**Spillway of Konche 3**
	
Spillway of Konche 3	**Konche 1**
	
Bottom outlet 1 of Konche 3	**Bottom outlet 1 of Konche 3**

	
Bottom outlet 2 of Konche 3	**Hydrant**

FIELD VISIT REPORT: K36 IRRIGATION SYSTEM				**14**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
14.11.2017	Kavadarci	Tikvesh WMC	Risto Manev	Tikvesh dam
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
40 Ha	pumping		95 hm3 for irr.	Not available
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
370 Ha		200	high	There was a WUA
Intake/Reservoir description / Problems:	There is a pump station from the Tikvesh canal that provides water to a larger area and some water to them.			
Irrigation system description / Problems	They do not have enough water to irrigate the possible land because the system was not part or the original design for Tikvesh irrigation area			
Proposed intervention	To construct an intake below K36 existing intake and conduct a pipe to provide pressurized irrigation water to the area near Sopot, where a distribution network will be design			

Photos:



Location of existing canal and proposed new pipeline to irrigate the area near Sopot, Kavadarci

Existing canal at intake K36

Existing canal downstream intake K36

FIELD VISIT REPORT: DABNICHKA REKA IRRIGATION PROJECT				15
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
25.10.2017	Kavadarci	Tikvesh JSCWM	Risto Manev	Dabnichka river / Tikvesh canal
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
20 Ha	High pressurized	Up to 100 l/s		Not availbale
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
300 ha (depends on water availability)	Main open concrete canal, L=2.1 km	Up to 600	High	No

Intake/Reservoir description / Problems:	Stone intake structure is constructed in 1954. Intake body is in good condition, but reservoir silted, gates old and broken, silting basin needs rehabilitation/reconstruction. Slope of the crest of the intake structure is not inclined towards to intake canal and most of water goes to the left side which there is no water use rather than intake canal. The amount of water can be increased form Tikvesh canal up to 100 l/s.
Irrigation system description / Problems	Irrigation system is constructed in 1954 to irrigate 200 ha area being the first modern irrigation system in Yugoslavian time. Irrigation scheme is pressurised AC pipe. Recent years only 20 ha area is irrigated. There is 2.1 km long rectangular concrete conveyance canal (50x50 cm), covered with concrete slaps on the top. At the end of the conveyance canal there a storage tank to supply water to the pressurized (10 atm) AC piped irrigation scheme. Conveyance canal and siphons on and slaps on top of it are collapsed in some sections.
Proposed intervention	Tirolese intake structure needs rehabilitation. Silting basin and intake structure to the conveyance canal needs reconstruction. Conveyance canal needs replacement with HDPE pipes. Pressurised AC pipe irrigation scheme needs reconstruction.

Photos:

Troll intake structure

Troll intake structure

Silting basin

Conveyance canal intake

	
Silting basin	**Concrete conveyance canal with top slap**
	
Intake into conveyance canal	

FIELD VISIT REPORT: SUVODOLSKO IRRIGATION SYSTEM				**16**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
04.10.2017	Novaci	No	Ilija Grujoski	Suvodol Dam
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
150 Ha from river		Suvodol Dam	2 Hm3	Feasibility study
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
Up to 600 Ha		Up to 600	Very high	No
Intake/Reservoir description / Problems:	The Suvodol Dam has 4 hm3 but 2 hm3 are reserved as flood control, so only 2 hm3 can be used for irrigation. The dam is in good condition. It was originally planned to provide water to the Bitola Coal Power Plant (REK Bitola) but as water is hard, the BCPP change the source to Strezhevo dam and now it can be used for irrigation.			
Irrigation system description / Problems	The actual irrigation area depends from the Crna river with inefficient system. The area has no irrigation from the dam because the water was used by the BCPP. Some farmers used groundwater. There is an existing pipe of ductil iron ⌀ 600 mm. from the dam that ends in a pump station on the Crna river. There is also a new 600 mm pipe 600 m long			
Proposed intervention	Construct a distribution irrigation network from the existing 600 mm pipes to provide pressure water. The available elevation is more than 50 m at the begging of the possible irrigation area.			

Photos:

Suvodol dam and towers of Bitola Coal Thermal Plant at the back

Upper intake in Suvodol dam

FIELD VISIT REPORT: GABALAVCI IRRIGATION SYSTEM				**17**
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
04.10.2017	Bitola	Strezhevo	Ilija Grujoski	Strezhevo Dam (Shemnica river)
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
1 Ha		Strezhevo Dam	112 Hm3	Not available
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
150 Ha in Gabalavci 150 Ha in Sekirani		60	High	No/ Strezhevo
Intake/Reservoir description / Problems:	The Strezhevo dam is in good condition and design to provide water to an irrigated area of more than 20.000 Ha. The distribution system is in bad condition. Gabalavci is located immediately downstream the dam			
Irrigation system description / Problems	Gabalavci irrigation area although is under the main canal from Strezhevo dam, does not have irrigation system. Some water is released to a creek from where 1 Ha is irrigated.			
Proposed intervention	Construct and intake in the existing main canal of Strezhevo dam and pipes from there to provide pressurized water.			

Photos:

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Strezhevo dam</td><td>Lake</td></tr>
<tr><td colspan="2">  </td></tr>
<tr><td colspan="2">Gabalavci area downstream the dam</td></tr>
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FIELD VISIT REPORT: DESOVO PROJECT				18
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
27.10.2017	Dolneni	Prilepsko Pole	Nikola Nastoski, Viktorija Veleska	Desovo 1 and 2 cascade dams
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
80 ha	Low and high pressurized	Dam storage	Total 215,000 m^3	Summary note
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
280 ha	Main pipe line Ø 315, L=900 m	100	Very high	There was one that was working well
Intake/Reservoir description / Problems:	The dams are earth fill dams and spillways are not lined, they are in bad condition. There is no dam stability problem. There is vegetation on the downstream face of the both dams` body. Bottom outlet of dam 1 is leaking and of dam 2 is covered with vegetation and not working properly. Dams were constructed in 1985.			
Irrigation system description / Problems	PVC low and high pressurized pipe scheme is constructed in 1990 to irrigate 120 ha area. About 80 ha irrigated in recent years. Main crop in the irrigation area is 95% tobacco. Mainly sprinkler irrigation system is used. The hydrants are old and have no protection. Water for the households is taken from the irrigation scheme hydrants whenever there is no water to be taken from groundwater. If there is water available, they wish the irrigation area to be increase.			
Proposed intervention	Existing earth road is very bad and not possible to reach the dam sites especially when weather is rainy. 1) dam access road need rehabilitation, 2) both spillways to be formed concrete lined, 3) dam bodies need to be formed and cleared from vegetation on the slopes, and 4) bottom outlets need rehabilitation and vales need replacement. Existing PVC pipes are about 27 years old and theoretically half of their technical life, it would be better to replace them. Existing hydrants are old and rusted and to be replaced. Irrigation system needs to be replaced with a new pressurized irrigation system. Farmers want another dam to be constructed in the next river to the west. The want hidrants to be every 45 m, instead of 90-100 m as actually			

Photos:

Reservoir 1

Dam and spillway 1

Reservoir 2

Dam 2 and spillway

Downstream of Dam 1 spillway

Bottom outlet 1

Bottom outlet 2

Bottom outlet and valves 2

Hydrant

FIELD VISIT REPORT: TEARCE PROJECT				19
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
01.11.2017	Tearce	no	Besim Imeri	Bistrica River
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
100 ha	Gravity	River	-	USAID previous project
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
300 ha	-	More than 300	high	-
Intake/Reservoir description / Problems:	Existing intake is in very bad condition and has to be reconstructed.			
Irrigation system description / Problems	There are 3 small hydropower stations on Bistrica River and operating since 5-6 years. None of small HPPs have daily regulation reservoir. At the end of the last small HPP there is an intake. Intake is in a bad condition and has to be reconstructed. There are two villages (Tearce and Preslovce) very close to each other and has only one municipality. These villages also get household water from Bistrica River. Irrigation system is constructed in 1950`s and some part of the main canal (about 500 m) renewed by UNDP finance. Main open canal of the existing system is passing through Tearce Village and concrete lined within the village. Main canal receives water before leaving the village from a canal which receives water from the same river but at lower level. After the village the main canal is an earth canal. Secondary canals are also earth. Some area irrigated above the village, but main irrigation area is below the village. Main irrigation area is between the village and the old HMS irrigation system. HMS irrigation system was constructed about 30 years before by a governmental organization (Combinat) and operated by that organization. In 1990`s governmental organization is bankrupt or collapsed. Lands in the irrigation area of the Combinat belong to the Government and there are no farmers in the area at present. The part of open main canal going through the village heeds to be replaced by a closed pipe system. Groundwater is available in the project area. The depth of the groundwater is about 5-10 m below the ground level at the plain part and 50-60 m in upper part of the irrigation area. At the plain part of the irrigation area a Dutch company constructed a sprinkler system for the horticulture. Recent years only 100 Ha could be irrigated due to low maintenance and operation.			

Proposed intervention	A prefeasibility report to irrigate 160 ha area is prepared under USAID program but the project is not realized. Irrigation area of that project is covering only the lands of Tearce Village. Since there are two villages next to each other it is better to irrigate lands of both villages. Intake structure needs rehabilitation/reconstruction. Irrigation system needs reconstruction.

Photos:

Intake Structure after HPP

Intake Structure after HPP

Seepages from intake structure

Intake structure at the downstream (300m)

Main canal within the village

Irrigation area (Dutch company)

HMS main canal

Irrigation area below HMS main canal (idle)

FIELD VISIT REPORT: BANJICHKO POLE IRRIGATION SYSTEM				20
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
27.09.2017	Gostivar	no	Nasir Hasip Pajtim Saiti	Vrutok Spring, Vardar River
Irrigated Area	**Pressurized/ gravity system**	**Water availability**	**Dam useful volume**	**Existing studies**
50 Ha	Gravity			
Possible irrig. area	**Length of canal/pipe**	**Number of farmers**	**Interest of farmers**	**WUA/AC**
150 Ha	8 km	150	high	no
Intake/Reservoir description / Problems:	The intake should be repaired. They also receive water from a small hydropower plant downstream the intake. The quality and quantity of water seems no to be a limitation			
Irrigation system description / Problems	According to farmers there is a main lined canal of 11 (or 15) km (of which 4 km were rehabilitated recently by a USAID project) and 7 km of secondary canals. (these figures seem to be to high). Secondary canals are in bad condition and should be replaced by a pipe/repaired. Farmers prefer open channels. Main traditional production is onions, which have very low price due to the imported onions from Serbia.			
Proposed intervention	The elevation between intake and plots allows a pressurized system without pumps. Final lengths to be determined. Alternatives for open canal and pipes should be analysed based in their costs. The rehabilitated open channel can be used and then replaced by a pipe to get pressure The system is close to urban area, should be check against urbanization plans.			

Photos:

Intake on Vrutok spring without gates

Water coming from SHPP

	
Measuring flume not working	**Main canal and field diversion**
	
Secondary canal to be rehabilitated	**Secondary canal to be lined**

4.6 SOCIO-ECONOMIC FINDINGS AND WILLINGNESS OF WATER USERS TO COOPERATE IN MANAGING THE SCHEMES

Visits of the sites showed that most of the land has traditionally been with the families for many generations and the sentimental value has thus high importance. Possibility for income from agricultural activities is of high importance due to the limited size of this kind of land in the area and high level of unemployment of the population. Off-farm income possibilities are limited, and agriculture may be the families' only source of income.

Agricultural production is organized through small farms and their fragmentation which results in high costs per unit and production inefficiencies. Crop production is outdated; technologies are old which result in low yields/quality of products. There is a weak horizontal integration between (farmers associations, /cooperatives and /producer groups,) resulting in weak political influence, low bargaining power for purchase of inputs and sale of production). Weak vertical integration between farmers and processors leads to excess supply and wide price variations, inadequate raw material supply in terms of timing, quantity and quality, use of imported raw materials to compensate and, under-usage of installed capacities).

There is a low level of farmer education and/training, (which results in conservative attitudes to innovation). There are weak support services such as: market information, credit, research/extension, support policies (which result in weak market orientation, low rate of innovation, lack of medium term production planning and organisation).

Some of the surveyed participants hope that with better organization in agricultural management, with irrigation schemes which will provide stable water quantities for their fields, they will re-orientate towards more incomed crop production. In all 20 locations willingness of farmers to support project is very high. It can be appraised that more than 50% of the farmers on (potentially) irrigated agriculture area is willing to benefit from investments in small scale systems and take responsibilities to manage it.

More detailed outcome of the meetings with farmers is presented below.

FARMERS MEETING REPORT: ZAJAS irrigation system				**1**
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
30.10.2017	Kichevo	No	Project team Farmers	Zajaska (Tajmishka) river
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 18 F: /	Albanian	Zajas	More then 100	4.500
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
250 Ha	Bellow 1 Ha	Yes	Corn, fodder	Tomatoes, peppers etc. – horticultural crops
Interest	**Very high**			

Main benefit according to farmers	*The benefit is that the farmers would have better crops - they can go back to the crops they had in the past. Reducing poverty and economic stability. They would increase crop production from 40 to 250 Ha.* *Possible reduction of migration.*
Social aspects	"We used to have best bean here and now we can't plant this land as it requires water and we don`t have it."
Water community aspect	They would do whatever it takes to have irrigation – forming of some kind of water community/farmers organization is not a problem.
Additional information	There is a problem with sewerage – they don`t have it, they are afraid that at some point irrigation canals will integrate sewerage, but they were informed that his will not happen. They understood that this issue is not related to the irrigation itself it is something that they believe should also be fixed.
Risk	Migration of the citizens can cause that there are no more young people to work on the land.

Photos:




FARMERS MEETING REPORT: KOLIBARI irrigation system				2
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
30.10.2017	Kichevo	No	Project team Farmers	Zajaska (Tajmishka) River
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 24 F: /	Albanian	Kolibari	Above 100	750
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
500 Ha	Above 1 Ha	Yes	Corn, fodder	Tomatoes, peppers etc. – horticultural crops
Interest	The interest level is **very high**, the citizens believe their life depends on this.			
Main benefit according to farmers	The land is very fertile but not having water for irrigation is influencing the crops. It used to be much better, now the farmers suffer from lack of water. They needed to change the crops because of this. *The main benefit would be that significant land can be covered with irrigation system creating access for the farmers to arable land. Also, the farmers can grow more profitable crops and go back to some crops that they used to plant in the past. From the existing 150 Ha that are being irrigated we will achieve 300 Ha.* *Possible reduction of migration.*			
Social aspects	The tradition of agriculture is very high. The farmers feel connected to the land, it's in their blood to work with the land. 70% of the people have land. "We love our land, we have really high tradition in this area and we don't want to stop this."			
Water community aspect	They would do whatever it takes so that they are having the benefits of the irrigation system. There is no problem to form water community/farmers organisation.			
Additional information	They would like to use the underground water, but most probably this can't be done. The open canals should be changed with closed system-pipes.			
Risk	Migration of the citizens can cause that there are no more young people to work on the land.			

Photos:

FARMERS MEETING REPORT: SLAVISHKO POLE irrigation system				3
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
31.10.2017	Rankovce	No	Project team Farmers The Mayor LER representative	Kriva reka
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 15 F: 6	Macedonian	Rankovce (with many settlements that are there)	250	Around 4000
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
290 Ha	Small (bellow 1 Ha)	No	Horticultural crops	Same
Interest	The interest is **very high** and there is support from the Local self-government.			

Main benefit according to farmers	The situation is that the canals are destroyed, there are trees that grow from them. Someone is misusing the land where the canals are placed. The canal is from Turkish time while the system is from the 1960-70. There was a combinate "Malina", but now the irrigation system there is old and destroyed. More options for irrigation system were explored, but the Mayor stated that it is most important that the system is done in the right way even if it is for a smaller land so that they can be sure that it will function with the amount of water that they will have. *The land that people have is small but still they would benefit greatly, and the irrigation system would assure economic independency of the citizens. This is area without migration, people depend on this, they would get significant benefit. From 40 Ha, the irrigated area will become 290 Ha, so a lot of citizens will benefit.*
Social aspects	"This is a rural, not industrial area, so it is important that the irrigation system functions." said the Mayor and continued "The citizens here don't wait for social support from the country, they take care of themselves." There are many people that live only from agriculture and cattle.
Water community aspect	There was initiative in 2010 for forming water community. The person that formed it is an advisor at the Municipality. They are curtain they will agree between each other for the water management.
Additional information	Aside from the farmers the Mayor showed personal interest and stated that he will personally make sure the project receives full support.
Risk	/

Photos:

FARMERS MEETIG REPORT: HMS DOVEZENCE-JACHINCE-KLECHOVCE irrigation system				4
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
03.11.2017	Kumanovo	Yes – Kumanovsko – Lipkovsko pole	Project team Farmers	Kriva reka
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 12 F: /	Macedonian	Dovezence Jachince Klechovce	100	220 households in Klechovce, all 3 villages approximately 300
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	Small (in decares) next to the river, bigger where the new system might be placed	Yes	Potatoes, wheat, horticultural crops	Same plus introduction of what grew in the past
Interest	High			
Main benefit according to farmers	*From the possible 300 Ha, the farmers irrigate 30 ha. They also needed to change the crops due to lack of water, they are terribly affected by the lack of waters. Therefore, the benefit would be enormous, and three villages would benefit from it.* At the moment the irrigated area is next to the river, where the land is smaller, in decares. If the new system is build they will be able to use the bigger parcels and make greater profit.			

Social aspects	"We are really hit by the climate changes; weather conditions are not like they used to be." "In the past we used to grow tobacco, cotton, rice…Now we have to plant only corn and wheat…and not everywhere" "The people that sell on the market are sales persons, there is no space for the ordinary people from the village like us. The price that we achieve for our products is not good…"
Water community aspect	Those that use the water pay for the water, the relation with JSC Vodostopanstvo is good, but they are willing to take on management on their own as well.
Additional information	There was an old system covering 150 ha, but now it is not in good condition – the concrete pipes are with lots of wood and roots. The farmers would like for the system to be on the same location. There is not enough water pressure and not enough water in general. After 15.08 it is possible that no water is there at all. Consequently, pumping will be required and associated electricity costs.
Risk	It might be expensive to maintain the system that includes electricity. Difficulties with achieving good market prices might affect the decision for the farmers to continue with agricultural activities. There is a need to also help the citizens in this respect.

Photos:




FARMERS MEETING REPORT: KONOPNICA irrigation system				5
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
31.10.2017	Kriva Palanka	None	Project team President of the settlement Farmers	Selska Reka
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 39 F: 10	Macedonian	Konopnica	All of them – app. 200	There are 2700 citizens, 750 households.
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
150 Ha	Up to 2 Ha	None	Peppers, tomatoes, beans, beetroot	Same
Interest	The interest is **very high** as the village is suffering from lack of water.			
Main benefit according to farmers	The citizens live only from agriculture. They each have couple of hectares land. The production is used for domestic purposes and for selling on the market. They have mechanization, tractors etc. At the moment they have a problem of unequal water usage – Selska reka is spent a lot from some, while some don't have any. They believe that the system will introduce some order that all will have to follow. The next village Mozhdivnjak has system that is supplied from another river that is paid by the EU, so they would like to have the same. *The main benefits for the village that lives from agriculture are that they would finally have a system that would help them work agriculture with greater success and greater profit. The land is fertile, and the products are good, so they would find their way on the market. There is even potential for organic food certification which would increase the profits. This would assure economic stability.*			
Social aspects	"What grows here is with high quality and good in taste. The land is very fertile, all things can grow here…" They are the biggest village in the area but have the least water.			
Water community aspect	All of them would agree that water community is going to be formed. They would like for a person to be employed for the management purposes. They are ready to accept the price that will be defined by hectare. "The fact that we came in such great number is a proof that we would like to do this."			

Additional information	The village has drinking water problem. The dams are made with high precision, but they don't know if there are rocks.
Risk	Not enough water.

Photos:








FARMERS MEETING REPORT: MAVROVICA DAM irrigation system				6
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
01.11.2017	Sveti Nikole	Yes	Project team Farmers AD Vodostopanstvo representative CSO representative	Mavrovica dam
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 20 F: /	Macedonian	Mezdra Sv. Nikole	200	650 households
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	Up to 10 Ha	None	Wheat	Horticultural crops
Interest	High			
Main benefit according to farmers	There is a project of 300 Ha that they would like to build. There is a need to rehabilitate the primary and secondary network, both left and right from the road. There is no need from pumps, all water will use gravity. *The main benefit is that big arable land will be secured for the people that live from agriculture and where no migration is present. There is enough water, so it is a waste not to use if for agricultural purposes. People have big parcels, so they would make greater profit, securing economic stability. Also, bigger parcels are more likely to use modern systems for irrigation, such as drop-by-drop, which means water will be used more efficiently.*			
Social aspects	"We are waiting for solution for a long time. We need to work this land…"			
Water community aspect	JSC Vodostopanstvo exists and is charging 100% of the water. Some of the farmers said that since this is the dam of Sveti Nikole, JSC Vodostopanstvo from Kochani can't be managing this system. So, they would like to have separate association. The farmers are not worried about the price of water. They say that they will pay as they did before. It is possible to form water community.			
Additional information	There was an CSO representative at the meeting that was interested in another project which is submitted to the MAFWE. However, as this is a different location it can be combined with the proposed one. There is enough water from Mavrovica dam to satisfy the needs for irrigation (even more – above 1000 Ha).			
Risk	/			

Photos:




FARMERS MEETING REPORT: PISHICA DAM irrigation system				7
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
01.11.2017	Probishtip	Bregalnica Pole	Project team Farmers	Pishica Dam
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 17 F: /	Macedonian	Pishica	75	200
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	Bellow 1 Ha (in several locations)	Migration is over	90% wheat Old sorts Fruit Fodder	Keeping the old sorts and introducing new crops
Interest	High.			
Main benefit according to farmers	*Main benefits are that the whole land allows irrigation with gravity; they have high tradition – they produce healthy food, they use fertilizer from their own cattle; there are young people to work on the land (no migration). The land is with good quality and fertile. From the 70 Ha they can increase irrigated area to 150 Ha.* The citizens claim that 90% they depend on rain for irrigation.			

Social aspects	The migration here is over, the citizens no longer are moving out. There is a strong presence of livestock breading and great tradition in agriculture. But the citizens are under lots of pressure from the climate changes. So now it is much harder than before. “Using the water for rice is not very profitable, we want to have other crops. It is how the system was originally planned but we don’t use it for this.” “We are proud that we are keeping the old sorts like for example the cucumbers and “jabuchar” (tomatoes). We also have high tradition in horticultural crops, with water from gravity we grow peppers and tomatoes. We have lots of cattle, so we also plant lots of fodder.” “Our land is very good compared to Sveti Nikole for example...”
Water community aspect	All of them are very interested and willing to form a water community.
Additional information	In one-month time the dam will be fixed, so it will be easier to do the system.
Risk	/

Photos:




FARMERS MEETING REPORT: SELEMLI irrigation system				8
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
07.11.2017	Bogdanci	No	Project team Farmers	Selemli dam
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 24 F: 1	Serbian	Selemli	20	50 households
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	2-5 Ha (reaching up to 20 ha)	None	Horticultural crops, cabbage, watermelon, wheat Japanese apples	Same
Interest	The interest is **very high** as the citizens live only from this.			
Main benefit according to farmers	*The profit that the farmers make at the moment is very small. The main benefit would be that with irrigation system from the big parcels the farmers can increase production, and this would really influence their life in significant manner. The system will reduce their costs for irrigation which are high at the moment. They already have drop-by-drop systems, so the water would be used efficiently.* At the moment they irrigate 200 Ha, they can increase it to 300 Ha if there is a system. A lot of the farmers don't plant anything since there is no water. The combinate Vinojug made the dam but it is no longer functioning. It is located on the best land that the farmers gave up so that the dam could be built. The farmers now take land on concessions from Vinojug (there are also farmers from other villages), which is not irrigated for 15 years. It is possible that Vinojug is further used by the farmers with consolidation process.			
Social aspects	Only 0.5% of the citizens work in administration. All of them live from agriculture. "All of the villages around us have system, we are the only ones that don't." "Our costs are 10 times more than if we had a system."			

Water community aspect	They will find a way to manage the system together. They would like that their own person is employed, and they pay his salary. Only in this way the expenses would be real, they claim.
Additional information	All of the farmers use drop-by-drop system. People in the village are very positive and optimistic, they believe in changes and they believe they can increase the quality of life. 2 years the dam is not full. There are no water losses as they are pumping the water. So, it would be significantly cheaper to use the system even with pumps. There should be two lines on one pump.
Risk	This risk is lack of water if the combinate starts to irrigate.

Photos:






FARMERS MEETING REPORT: GRCHISHTE irrigation system				**9**
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
14.11.2017	Valandovo	No	Project team Farmers	Vardar river
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**

M: 21 F: /	Macedonian	Grchiste (and citizens from Valandovo)	300	250 citizens
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	1 Ha	None	Wheat	Horticultural crops
Interest	The interest is **extremely high**.			
Main benefit according to farmers	*The main benefit is that new irrigation system would take advantage of the lot of water that is available, it will reduce the costs where there is irrigation and it will allow usage of the land that was not irrigated at all until now.* There are also people from Valandovo that have land here, so they would benefit as well. There are 150 ha on each side, one which is irrigated and needs to become a system (at the moment they take water from own drills) and one which is totally not used and not irrigated. They used to have a system until 1970, but now it is destroyed. There are 200 Ha next to the potential irrigation system that are privately owned by person outside the Municipality.			
Social aspects	"Everything grows here. We are like California ☺" "The land is very fertile, there is plenty of water, we have to make the system."			
Water community aspect	The farmers would like to manage the system. They say that water community exist in other villages which are near by (for example Marvinci, Balinci and Brajkovci have one) and it can be used as a good example. This water community has 3 employees.			
Additional information	They already expressed their interest for such system on a public debate.			
Risk	The drills are easy to make and are free. System will be more expensive. The area that that is not irrigated at the moment is mostly not suitable for irrigation.			

Photos:

FARMERS MEETINGS REPORT: CHAUSHLISKA DAM irrigation system				10
Date of farmers meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
09.11.2017	Bosilovo	Strumichko Pole	Project team Farmers Commercial entity – Dalvina / Agrolozar	Chaushliska river Chaushliska dam Area: Hamzali
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 21 F: /	Macedonian	Drvosh and Chardaklija	200 + Agrolozar	Drvosh 800 Chardaklija 700
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
100 Ha	Below 1 Ha (just 5 people have above 1 Ha)	Lots have migrated as they don't have water.	Farmers: Grapes, tobacco, corn and wheat Agrolozar: apricots, plums, apples, nectarines and peaches Dalvina: grapes	Farmers: increase grapes and introduce watermelon and peppers. Agrolozar: same as in the irrigated area.
Interest	The interest is high both from the farmers as well as Agrolozar.			
Main benefits according to farmers	*If the 45 years old system is rehabilitated and the dam is cleaned, the benefit for the citizens of the two villages would be substantial. They could increase production and even change crops.* *The benefit of Agrolozar would be for the area that they currently don't irrigate.*			

Social aspects	The citizens are not making the best out of the land, which influences the amount of production. Although the potential irrigated area is not very big it would influence the quality of life and increase the possibility of the young generations staying. Agrolozar will become even more dominant land user in the area. "We can see that where they have water people make 1.5 tones, while we can't even make 700 kg…" "This is a constant battle for us…"
Water community aspect	At the moment, the water from Turija is managed by JSC Vodostopanstvo. As stated by the Agrolozar representative, they are not happy at all with the services. That believe it is unfair - Vodostopanstvo pay no attention to how much is actually irrigated and don't charge the same for the same crops throughout the country (for example they pay 150euro and Rosoman pays 100euro per ha). Also, they don't distinguish between someone using drop-by-drop system or just canals using gravity (which takes 10 times the amount of water). "They define the area by Google maps, not the actual situation." Agrolozar have own mechanization, so they are not completely dependent from Vodostopanstvo. This is not the case with the rest of the farmers, they don't have mechanization, they are totally dependent from Vodostopanstvo. They share the opinion of Agrolozar on the subject. There are two options for the water community, which all the participants voted for: - To have 3 water communities – one for each of the villages and one for Agrolozar so that they avoid becoming dependent from Agrolozar - One water community for all the area It appears that the farmers would be more interested with the second option, in the case in which they get some benefit from it and rules are clearly defined.
Additional information	The project team suggested that if the system is made Agrolozar should take on a role of being socially responsible and contribute to the management so that the farmers have greater benefit. They agreed and said that they are willing to help with the maintenance of the whole area and also, they are willing to help with measurements and all.
Risk	Agrolozar to have commercial benefit more than the farmers, as they have big land. On the other side if the system is made, the farmers would get the additional support from Agrolozar.

Photos:

FARMERS MEETINGS REPORT: DRAZHEVO irrigation system				11
Date of farmers meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
08.11.2017	Novo selo	Up to 1991 Strumichki sliv	Project team Farmers President of the settlement	Jama and Preslap rivers
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 26 F: 1	Macedonian	Drazhevo	100	150 households
Possible irrig. Area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
More than 200 Ha	1 Ha	None	Wheat, corn, beans, potatoes, watermelon, peppers, tomatoes, japanese apples	Same
Interest	The interest is **very high**.			
Main benefits according to farmers	*The main benefit is that the farmers will increase irrigation from 70 Ha to more than 200 Ha, they will reduce the high water losses, they can start breeding cattle again. The benefit is also using the water that now just gets lost in the river.* The biggest problem that farmers have is the lack of water for drinking and irrigation. They depend on the weather. They have extreme water losses (60-70%). This is due to the canals made from earth which are not in good condition. The farmers used to have cattle but not anymore as they don't have water. Now they have only for domestic purposes.			
Social aspects	This remote but very pure village doesn't have migration, its existence depends on agriculture. "Now we have just 20 minutes to irrigate…This is nothing…" "I used to have more than 50 ha of land with peppers, now I can't do anything…"			
Water community aspect	The farmers are interested in having own water management organization. Drazhevo, Smolari, Staro Konjare, Kolesevo – each village will have separate water community.			
Additional information	They need accumulation that will be filled in during the night. It should be below the village. However, since the accumulation is expensive, intake from the Strumica river can be solution. Small basin should be made, they have such in the other villages.			

Risk	Too expensive to construct accumulation. On the other side might be too expensive for the water users if there are pumps for future operation of the system.

Photos:

FARMERS MEETING REPORT: VASILEVO – DOBREJCI irrigation system				12
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
09.11.2017	Vasilevo	Strumichko Pole	Project team Farmers Director of PCE Representative from the self-government.	River Strumica and Vodocha Dam
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 20 F: 3	Macedonian Turkish	Vasilevo and Dobrejci	200	Vasilevo 2000 Dobrejci 1700

Possible irrig. area	Land per person	Migration	Existing crops	Possible crops
400 Ha	Very small, under decar	No	peppers, tomatoes, leek, everything	Same.
Interest	High.			
Main benefit according to farmers	*The main benefit would be increasing the production and arable land. The farmers would reduce the expenses as they are pumping at the moment.*			
Social aspects	Many of the farmers all have mechanization so that they can extract the water – pumps, motors etc. But this is significantly increasing their expenses. "It is costing us a lot to work the land now, we need the system a lot…"			
Water community aspect	Not satisfied with Vodostopanstvo - "They just do damage, they don't fix the issues." They don't pay as they don't use their services (they have own pumps). But the water communities were not disciplined. They are afraid that they are not capable of managing alone. Might be an option to manage together with Strumichko pole.			
Additional information	The farmers would also like if someone would help them install drop-by-drop system. They would like for the canal to go through state land. They want to use Turija instead of Vodocha but this is not possible as Vodocha is used for drinking water. Vodocha project is done. This is best but Strumichko pole need to increase the existing areas efficiency and management to ensure water availability.			
Risk	The water availability depends on the efficient management of the Vodocha dam.			

Photos:




FARMERS MEETING REPORT: DAM KONCHE 3 and 1 irrigation system				13
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
06.11.2017	Konche	Radovishko vodostopanstvo	Project team Farmers Mayor	Koreshovec river
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 16 F: /	Macedonian and Turkish	Konche and Lumnica	70	200 households
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
100 Ha	1 Ha	None	100% tobacco	Same
Interest	High.			
Main benefit according to farmers	*The main benefit is that from the 20 Ha are now being irrigated 100 Ha can be achieved. With this the 200 families will benefit. There are also people that have taken land on concession, so even if people are moving out the land will be used for sure, according to the citizens.* There are two dams that need to be rehabilitated. From the third to the first the water doesn't flow. From the dam there are asbestos and PVC pipes. The intakes should be rehabilitated, the inflow should be fixed and the network should be reconstructed.			
Social aspects	"We want to continue growing tobacco, but we need water to do it."			
Water community aspect	They will find a way for community management. Now the farmers pay 20euro per decare (200e / Ha).			
Additional information	The main river is Lakavica. To explore if water can be taken from there.			
Risk	Too expensive to take from Lakavica as it is too far, but Koreshovec can irrigate 100 Ha.			

Photos:




FARMERS MEETING REPORT: K 36, Sopot, irrigation system				14
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
14.11.2017	Kavadarci	Tikvesh	Project team Farmers Representative from the Tikvesh Vodostopanstvo Former water community manager	Tikvesh lake
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 14 F: 2	Macedonian	Sopot	200	App 800
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
370 Ha	Above 1 Ha	None	Grapes	Grapes but more for eating than for wine Horticultural crops
Interest	High.			

Main benefit according to farmers	*The man benefit is that from the existing 40 Ha, the irrigated area can be above 300 Ha. There is enough water, the system can be with gravity (no expenses for electricity), the pipes will not be from asbestos like they currently are. The farmers will be able to introduce more profitable sorts of grapes.*
Social aspects	It is area in which the grapes can be with very high quality, grapes are one of the most important products in the country, so development of this would be good for the farmers and good for maintaining high quality grape production, also needed for premium wine production. "We will grow grapes for eating that are more profitable if we have the system." "Now we will have grapes that are first class, not fourth of fifth, like it currently is…"
Water community aspect	The farmers want to have some form of water community that would have more employees compared to Vodostopanstvo Tikvesh, that doesn't have enough people. Just one thing needs to be taken in consideration – those that have most land shouldn't dominate the water usage. The representative from Tikvesh Vodostopanstvo stated that water communities were very positive and mentioned the example of Rosoman, that had 1600 ha with this kind of management out of which 1300 were irrigated.
Additional information	Very good example of possible cooperation between the potential water community and the local water management company.
Risk	/

Photos:




FARMERS MEETING REPORT: DANICHKA REKA irrigation system				15
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
14.11.2017	Kavadarci	Tikvesh Vodostopanstvo	Project team Farmers	Dabnichka reka Tikvesh kanal
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 9 F: /	Macedonian	Begnishte, Dabnishte and Resava	600	300
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	1 Ha	None	Grapes, pumpkin, horticultural crops	Same, plus introduction of some new crops
Interest	High.			
Main benefit according to farmers	*The main benefit would be to increase from the 20 Ha that are being irrigated to more than 300 Ha, where above 600 farmers would benefit. The parcels are small, but people have parcels on more places. A lot of the farmers have drop-by-drop systems that they have done by themselves, so this would mean using the water efficiently. There are high water losses that will be avoided.* The intake is from 1954. The idea is that the intake is rehabilitated, and closed system is provided. There is an issue with one citizen that wants to construct a watermill, is waiting 8 years for permit to do this and doesn't think that with the closed system can do this. He says there used to be 13 water mills. There is water loss of 30%. The water is with good quality. The grapes that are being produced here are with premium quality, and not such high quantity. As this product can achieve higher price, it is important both for the farmers as well as the country.			
Social aspects	"I want to have other crops with which I can make more money." "We can have high quality grapes, this is the best land."			
Water community aspect	The farmers would want to create water community.			
Additional information	The amount of available water can be increased as it is supplied by Vodostopanstvo Tikvesh. At the moment they are not supplying such quantity as the network is in bad condition.			
Risk	Having obstacles from the person that wants to build a watermill.			

Photos:




FARMERS MEETING REPORT: SUVODOLSKO irrigation system				16
Date of field visit	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
08.11.2017	Novaci	Bitola Coal Power Plant REK Bitola	Project team Farmers	Suvodolska Dam
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 9 F: /	Macedonian	Novaci Dobromiri	600	1200-1500 Novaci
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
Up to 600 Ha	Bellow 1 Ha	None	Corn, wheat, industrial crops	Same
Interest	The interest is **very high**, as it will provide the system that citizens are already waiting for.			

Main benefit according to farmers	There is a project developed covering 2000 Ha, which is done between Vodostopanstvo, Strezevo, Ministry of agriculture, forestry and water economy and the Municipality of Novaci. *The main benefit would be to construct this system for which the citizens are already prepared for and with which lots of farmers can benefit.* There are extreme water losses due to the old pipes which will be solved with a new, closed system. There are two pipes from the accumulation to the river, but they are not good everywhere. At the moment, 150 Ha are being irrigated, the amount can be increased significantly. REK Bitola stopped using this water completely there can be enough water.
Social aspects	"We are all waiting for this system to be done. It will help us extremely." "There is a lot of land and lot of people will start using it if we have irrigation."
Water community aspect	They are all interested and would do whatever is necessary in order to have the system.
Additional information	The expropriation is solved so they are one step ahead – there will be no problem that the pipes run through someone's private land. There is 100 Ha state land but a lot is under concession (to ZG Pelagonija) and is given back with de-nationalization.
Risk	/

Photos:




FARMERS MEETING REPORT: GABALAVCI irrigation system				17
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
13.11.2017	Bitola	Strezhevo	Project team	Strezhevo Dam (Shemnica river)
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 10 F: 1	Macedonian	Gabalavci Sekirani	60	200 citizens
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	Very small – from 50 d	None. The village was always small	Corn, wheat, tobacco	Everything
Interest	High			
Main benefit according to farmers	Almost all of the citizens live from agriculture and have cattle. But there are people that don't plant anything because of the lack of water. *At the moment they only irrigate 1ha, so the benefit would be enormous as the irrigated land will increase dramatically and therefore will help into fighting poverty and assuring economic sustainability.* Also, since they at the moment they irrigate the worst land, they will be able to start using the land with better quality. Other crops would be possible with irrigation.			
Social aspects	The system would help the citizens from the village stay in this small village, continue the rural life. "We live from this, so this is our only solution. All villages around us have water, we are without it…"			
Water community aspect	They pay for water to Strezhevo for the land that they irrigate. Strezhevo is opening the water on the demand of the farmers. One solution is that the management is from Strezhevo – they are afraid from experiences that the other villages have where irrigation system is present. Apparently, the other villages often have floods from the pipes and for this Strezhevo compensates them. They are afraid to deal with such possible side effects on their own. However, it is important to note that this is an old system and that most probably this will not be the case with the new one. If the problem with the floods is solved they are willing to have own water community.			
Additional information	There is a lot of water and it is clean, so modern technologies like drop-by-drop can be used. It would be better that closed system is made so that losses are avoided.			
Risk	It is a small village so not a lot of farmers would benefit.			

Photos:




FARMER MEETING REPORT: DESOVO irrigation system				18
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
08.11.2017	Dolneni	Prilepsko pole	Project team Farmers	Desovo 1 and 2 cascade dams
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 30 F: /	Boshjnak	Desovo	100	1200 citizens
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
280 Ha	between 3-5 Ha	Yes	Tobacco, corn, wheat, cattle	Same
Interest	The interest is **very high,** even willingness exists that own power is used so that the process is supported.			

Main benefit according to farmers	*The main benefit would be to increase the arable land, in this area where only agriculture exists, although there is migration, there are also young people that are willing to work on the land. Also, providing water for the cattle, which everybody has.* They have two microplants – lakes which are very important. The land is big so there is no way to cover it all with irrigation. The land is second class. The network needs to be increased, to become denser. The village has problem with drinking water, not enough water and poor water quality. There are young people, everybody has land.
Social aspects	"We have started planning peppers, it is what we would do if we have water." "We could have crops of 2 tones, instead we have just 700kg…, because there is no water" "The peppers are gone this year, we didn't manage to do anything…" "At the end we don't have enough water, so we keep it for the cattle."
Water community aspect	The management was under Tutunski kombinat, now they are under Vodostopanstvo, they prefer this. They believe that Vodostopanstvo is more organized. But this statement is also influenced by the fact that 2 years were dry and they didn't get in-voices, but now they will start getting some. They appreciate this as in the past they had to pay no matter if they use the water or no. The representative from Vodostopanstvo says that he will monitor who uses what and charge accordingly, but farmers are not sure how this will go. They are willing to have their own water community.
Additional information	They are ready to take part with mechanization and physical power! Very rarely, only in spring, the water spills out. Every 90 m there is hydrant. There are woods in the dam. They fixed the issue with the dam. They would like new pipes.
Risk	/

Photos:

FARMER MEETING REPORT: TEARCE irrigation system				19
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
03.11.2017	Tetovo	None	Project team Farmers The Mayor	Bistrica
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 15 F: /	Albanian and Macedonian	Tearce, Prsovce, Glogi and Orosiste	More than 300	4000
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
300 Ha	Bellow 1 Na	Migration finished	Onion, potatoes, tomatoes	More profitable crops, like nuts
Interest	High, including the support from the Mayor.			

Main benefit according to farmers	*The main benefit would be to increase the irrigated area, to reduce the water losses and to introduce some new crops which will be more profitable.* They have open canal but not efficient. It is from the time of Yugoslavia. Now all is in someone's yard. 50 years not a single pipe has been replaced. The losses are 50%. 50% of the people gave up the land. They need to wait for 4 hours for the water. They just stopped to cultivate things. They are in favor of the new, modern systems of the EU. If the system is closed it would be great according to the farmers. If it is closed, then it doesn't get polluted with pesticides. They want new close system on government land. Maybe even hydro-plant. There was a plan for one, but they didn't get it. They had a proposal project with USAID in 2014. Drop-by-drop for corn. But this requires electricity which is not cheap. The young don't want to do agriculture because of this. When it comes to ownership, the land still belongs to the ancestors, as the transferring procedure costs a lot.
Social aspects	"I wanted to grow hazelnuts, but I can't as there is no water". "I had walnuts but they all dried up." "I spent 200 euros and it all went in vain." "This is our last hope."
Water community aspect	They are willing to cooperate in water management.
Additional information	The mayor was there to support the project. The fact that the area is mixed ethnically doesn't interfere, farmers get along well.
Risk	/

Photos:

FARMER MEETING REPORT: BANJICHKO POLE irrigation system				20
Date of the meeting	**Municipality**	**Water Management Institution**	**People involved**	**Water Source**
02.11.2017	Gostivar	No	Project team Farmers	Vrutok Spring Vardar River
Number of farmers present:	**Ethnicity:**	**Villages that would benefit**	**Number of farmers that would benefit**	**Number of citizens**
M: 29 F: /	Turkish	Banjin dol Belovishte	Min 150	600
Possible irrig. area	**Land per person**	**Migration**	**Existing crops**	**Possible crops**
150 Ha	1 Ha	Yes	Onion, potatoes, tomatoes	Same, focus is on onion.
Interest	High. They are very supportive of the project and hope that with it they can also solve the problems with placement that they have.			

Main benefit according to farmers	The area is famous for the good quality onion they produce. The amount of onion growing is also substantial. But the onion requires lots of water – every 2 days it needs to be irrigated. *Therefore, the main benefit would be to increase the production and to lower the prices of production so that the profit can increase. The irrigated area will increase from 50 Ha to 150 Ha.* The problem that will be solved is the canal (open system) which is 500 years old. It needs to be rehabilitated. The farmers believe that all canals can stay open as they are not close to the houses. Only 500-700m should be closed at the beginning. Between the two villages the production is 4mil kg onion. The farmers claim to have the best onion (it is grown here and in Bitolsko - Buchim in Macedonia, 6mil kg). The biggest problem that the farmers have is that they throw away some of the onion as import is allowed from Serbia. This combined with the fact that it has low purchase price, of 10 denars / kg is making the sales difficult. According to the farmers there is no need to import onion in the country between April – October. "The government doesn't take care of protecting this domestic product. We had some politicians here and they promised that the Minister will be brought to find solutions. We were even thinking of going on strike during the touristic season."
Social aspects	"The water is from Vrutok, good product, good onion, no marketing and lots of problems." "I have 4ha land and I had a company with my son, I was registered farmer. But I had to close as I can't make profit out of it." "There is migration as money can't be made. There is a lot of arable land that is empty as there is no profit. The fertilizers are also expensive."
Water community aspect	The farmers complain that they can't pay for water in this situation as they are not making profit out of the crops. Therefore, if there was a water community they think it will be even harder. This for them can work only if solution for the onion placement is found. However, they say that since at the moment they clean the canals themselves this would mean that some kind of joint management would be possible. The farmers explained that they had a company before 7-8 years which they still have but it doesn't function, as there is not enough money for dealing with the canals.
Additional information	This is the only location within the suggested ones from the project that is taking water for irrigation from the Vardar springs.
Risk	If the problem with the onion is not solved, then potentially the irrigation system will not achieve full efficiency.

Photos:

List of attendances of all above mentioned meetings with farmers is given as Annex 4.

Annexes

Annex 1 – Table and map of 201 identified schemes

Annex 2 – Table of 85 potential locations

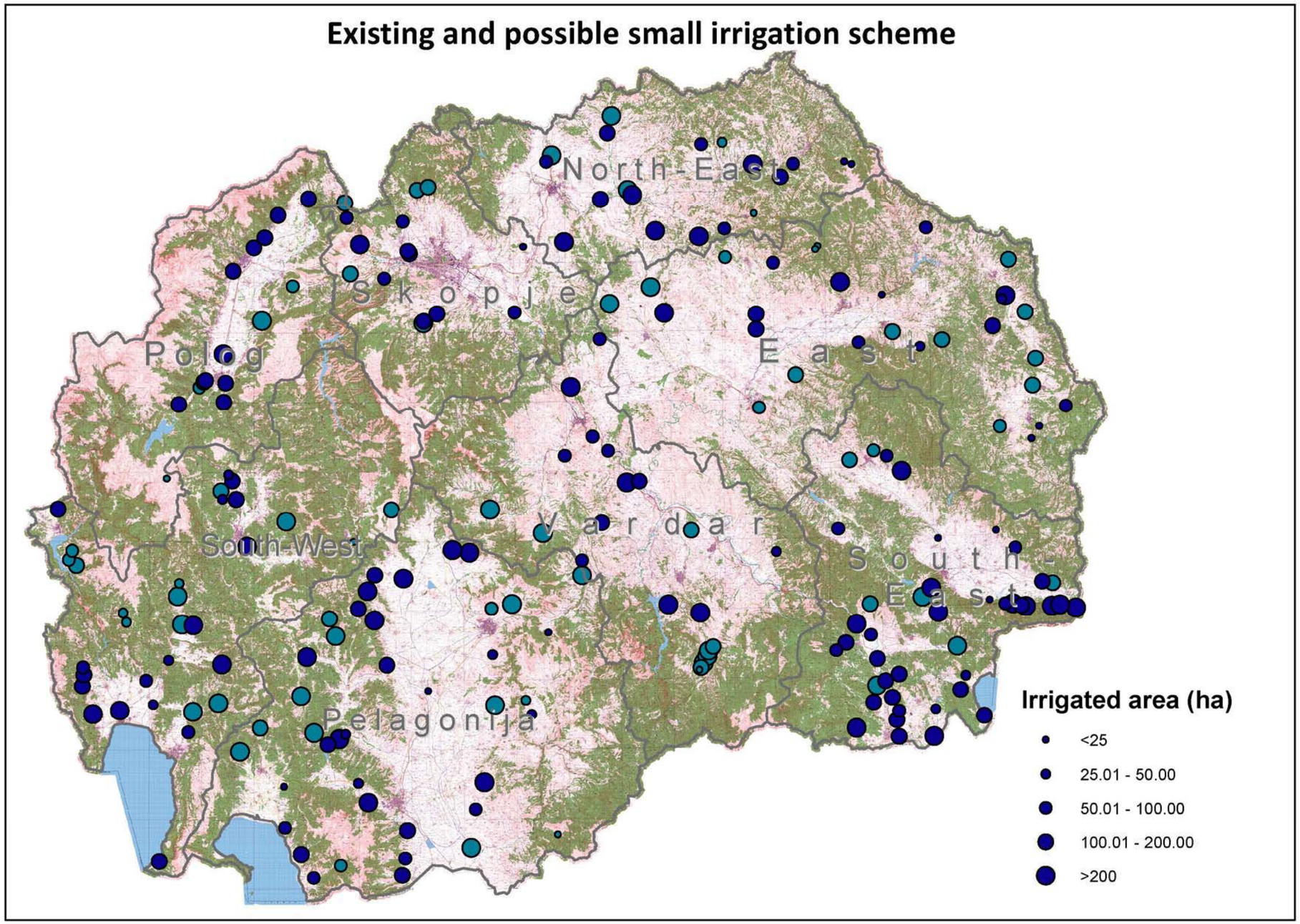
Annex 3 – Tentative work plan

Annex 4 – Lists of attendance from farmers meetings

Annex 5 - Bibliography

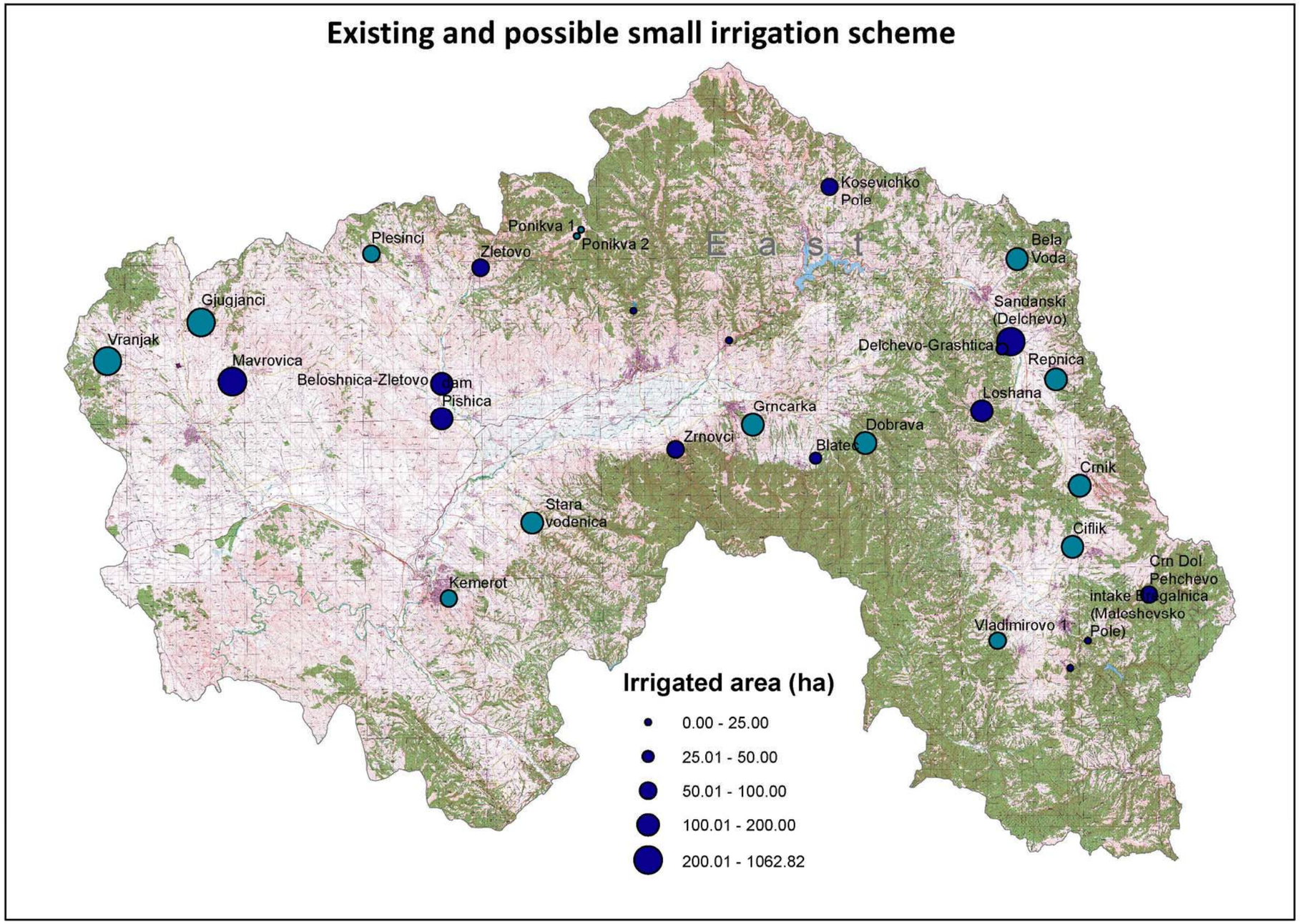
ANNEX 1: TABLE AND MAP OF 201 IDENTIFIED SCHEMES

LARGE POOL OF 201 POTENTIAL SITES FOR INVESTMENTS IN SMALL-SCALE IRRIGATION SCHEMES TO BE SCREENED



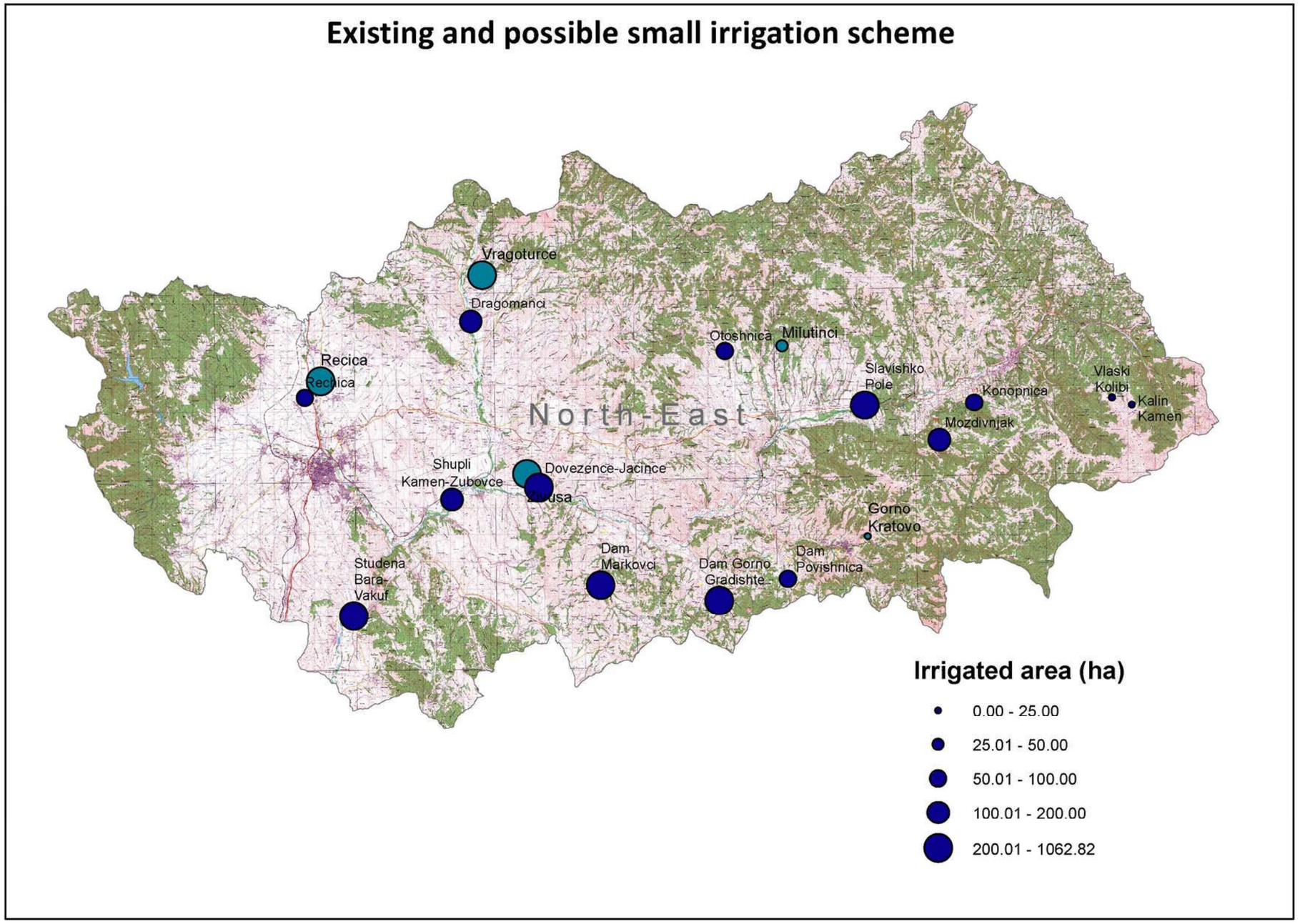
EAST REGION

Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha	Sum Criteria
1	Study for priority dams, 1980	New	Dam Gjugjanci	Madzarica	7579202	4646077	308		East	Sveti Nikole	Bregalnica	925,7	608,0	0,52	Gravel to coarse loamy	S, SE, SW	12%	5-10	<20%	<25000	0,41	4.4
2	ToR	Existing	Dam Mavrovica, HMS Bregalnica	Orlica	7581934	4640905	250	Sveti Nikole	East	Sveti Nikole	Bregalnica	939,0	595,2	0,52	Gravel to coarse loamy	S, SE, SW	7%	<5	<20%	<25000	0,41	4.8
3	Other Sources	Existing	Sandanski (Delchevo)	Bregalnica	7650074	4644397	250	Delchevo	East	Delchevo	Bregalnica	874,9	658,5	0,48	Coarse loamy	E,W	5%	<5	<20%	25000-35000	0,89	4.6
4	Study for priority dams, 1980	New	Dam Vranjak	Vranjak	7571005	4642706	250		East	Sveti Nikole	Bregalnica	927,8	606,8	0,52	Gravel to coarse loamy	S, SE, SW	12%	5-10	<20%	<25000	0,41	4.3
5	Other Sources	Existing	Beloshnica-Zletovo	Zletovska	7600278	4640730	200	Probishtip	East	Probishtip	Zletovica	938,3	595,9	0,56	Coarse loamy	S, SE, SW	3%	5-10	<20%	<25000	0,66	5.2
6	Study for priority dams, 1980	New	Dam Bela Voda	Gabrovska	7650624	4651632	200		East	Delchevo	Bregalnica	861,6	672,0	0,48	Fine to coarse loamy	S, SE, SW	17%	<5	<20%	25000-35000	0,89	4.6
7	Other Sources	Existing	Loshana	small dam	7647551	4638311	196	Delchevo	East	Delchevo	Bregalnica	857,0	676,1	0,48	Coarse loamy	E,W	8%	10-20	<20%	25000-35000	0,89	4.4
8	ToR	Existing	Dam Pishica, HMS Bregalnica	Pishichka River	7600279	4637623	170	Probishtip	East	Probishtip	Zletovica	931,7	602,2	0,56	Gravel to coarse loamy	NW, NE	8%	5-10	<20%	<25000	0,66	4.8
9	Study for priority dams, 1980	New	Dam Repnica	Repnicka	7654011	4641110	165		East	Delchevo	Bregalnica	852,5	680,3	0,48	Coarse loamy	S, SE, SW	15%	5-10	<20%	25000-35000	0,89	4.4
10	Study for priority dams, 1980	New	Dam Crnik	No name creek	7656090	4631815	135		East	Pehchevo	Bregalnica	827,7	704,8	0,48	Coarse loamy	S, SE, SW	15%	5-10	<20%	35000-45000	0,42	4.0
11	Study for priority dams, 1980	New	Dam Dobrava	Susicka	7637333	4635524	125		East	Vinica	Bregalnica	879,5	653,6	0,56	Fine to coarse loamy	NW, NE	15%	<5	<20%	35000-45000	0,91	4.6
12	Study for priority dams, 1980	New	Dam Stara vodenica	Kozjacka	7608158	4628539	124		East	Karbinci	Bregalnica	927,5	606,4	0,52	Coarse loamy	NW, NE	10%	<5	<20%	<25000	0,48	4.3
13	Study for priority dams, 1980	New	Dam Ciflik	Negreska	7655458	4626442	121		East	Pehchevo	Bregalnica	807,8	724,6	0,48	Coarse loamy	S, SE, SW	11%	<5	<20%	35000-45000	0,42	4.1
14	Study for priority dams, 1980	New	Dam Grncarka	No name creek	7627477	4637132	110		East	Vinica	Bregalnica	891,9	642,3	0,56	Fine to coarse loamy	NW, NE	17%	<5	<20%	35000-45000	0,91	4.6
15	Other Sources	New	Kosevichko Pole	dam on Kosevichka	7634193	4657954	100	Makedonska Kamenica	East	Makedonska Kamenica	Bregalnica	867,9	666,4	0,48	Gravel loamy to loamy skeletal	E,W	25%	<5	<20%	25000-35000	0,82	4.1
16	Study for priority dams, 1980	New	Dam Vladimirovo 1	Selska	7648899	4618219	100		East	Berovo	Berovo	812,1	721,1	0,48	Coarse loamy	E,W	19%	<5	<20%	35000-45000	0,54	4.5
17	Study for priority dams, 1980	New	Dam Kemerot	Otinja	7600880	4621961	100		East	Shtip	Bregalnica	938,0	596,5	0,52	Coarse loamy	N	14%	<5	<20%	<25000	0,80	4.9
18	Other Sources	Existing	Crn Dol Pehchevo	Crn Dol	7662150	4622284	80	Pehchevo	East	Pehchevo	Bregalnica	781,6	751,8	0,48	Coarse loamy	S, SE, SW	16%	<5	<20%	35000-45000	0,42	3.7
19	Other Sources	Existing	Zletovo	Zletovska	7603636	4650910	80	Probishtip	East	Probishtip	Zletovica	914,0	619,7	0,56	Gravel to coarse loamy	S, SE, SW	7%	<5	<20%	<25000	0,66	5.0
20	Other Sources	New	Zrnovci	Zrnovska River	7620716	4634976	60	Zrnovci	East	Zrnovci	Bregalnica	928,1	606,4	0,56	Coarse loamy	N	11%	<5	<20%	<25000	1,08	5.1
21	Study for priority dams, 1980	New	Dam Plesinci	Plesinski creek	7594085	4652091	60		East	Probishtip	Bregalnica	878,5	655,3	0,56	Gravel to coarse loamy	S, SE, SW	17%	<5	<20%	<25000	0,66	4.4
22	Other Sources	Existing	Delchevo-Grashtica	small dam	7649282	4643740	46	Delchevo	East	Delchevo	Bregalnica	867,3	665,6	0,48	Coarse loamy	NW, NE	16%	<5	<20%	25000-35000	0,89	4.4
23	Other Sources	Existing	Blatec	small dam	7632960	4634207	39	Vinica	East	Vinica	Bregalnica	881,3	651,5	0,56	Fine to coarse loamy	S, SE, SW	18%	<5	<20%	35000-45000	0,91	4.7


Existing and possible small irrigation scheme
East
Kosevichko Pole
Ponikva 1
Ponikva 2
Plesinci
Zletovo
Bela Voda
Gjugjanci
Sandanski (Delchevo)
Vranjak
Delchevo-Grashtica
Mavrovica
Repnica
Beloshnica-Zletovo dam
Pishica
Loshana
Grncarka
Dobrava
Zrnovci
Blatec
Crnik
Stara vodenica
Ciflik
Crn Dol
Pehchevo
Kemerot
intake Bregalnica (Maleshevsko Pole)
Vladimirovo 1
Irrigated area (ha)
0.00 - 25.00
25.01 - 50.00
50.01 - 100.00
100.01 - 200.00
200.01 - 1062.82

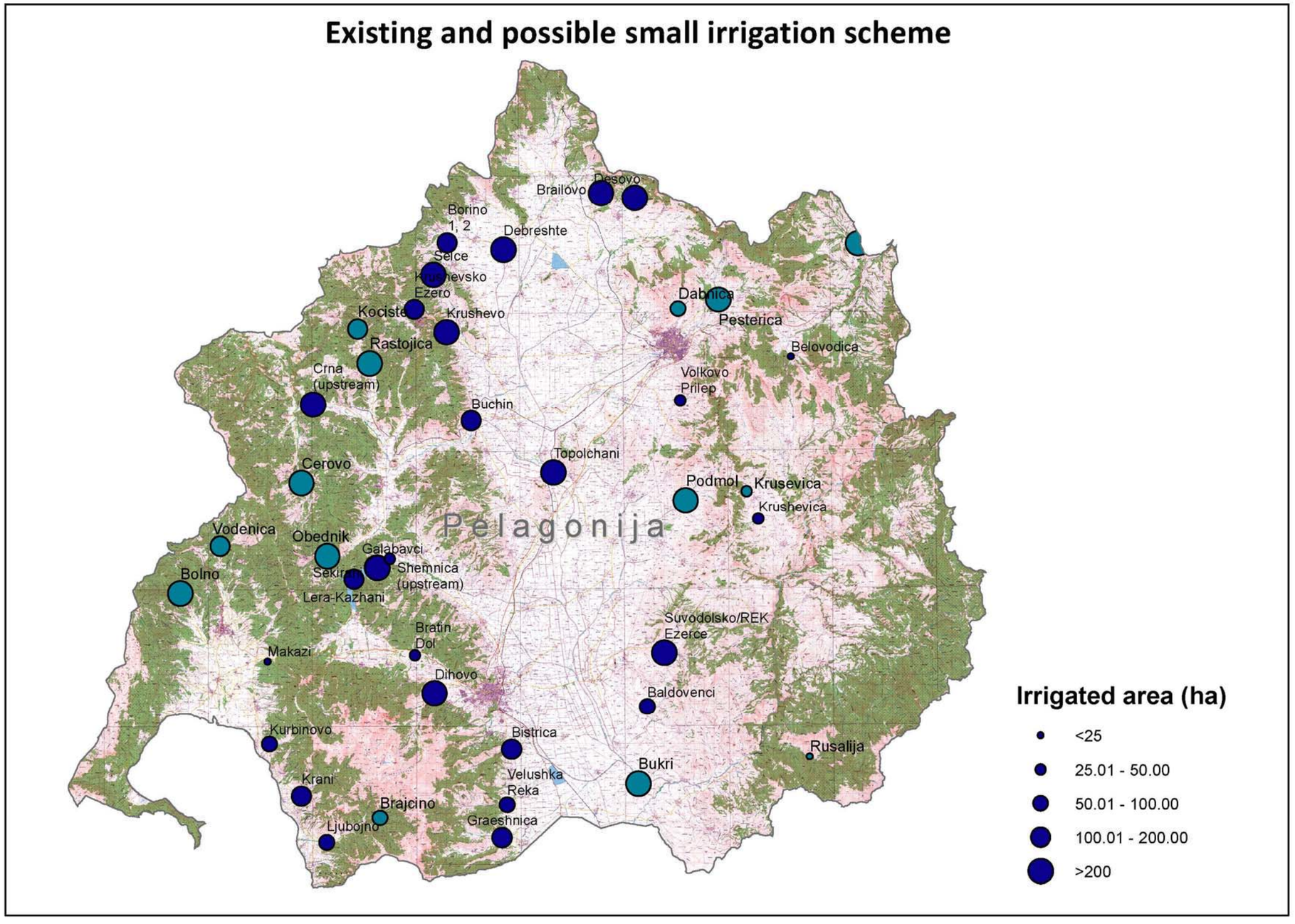
NORTH EAST REGION

Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha	Sum Criteria
24	Study for priority dams, 1980	New	Dam Recica	Tabanovacka	7559435	4672285	1116		North-East	Kumanovo	Kum.-Lipkovsko pole	927,7	606,1	0,49	Gravel to coarse loamy	S, SE, SW	5%	5-10	>30%	<25000	0,59	6,5
25	ToR	New	Dam Markovci	dam	7580129	4657253	354	Kumanovo	North-East	Kratovo/Kumanovo	Zletovica	927,2	606,9	0,43	Coarse loamy	NW, NE	11%	5-10	>30%	25000-35000	0,52	6,4
26	Study for priority dams, 1980	New	Dam Zivusa	Zivuska	7574655	4665436	302		North-East	Kumanovo	Kum.-Lipkovsko pole	940,4	593,9	0,43	Coarse loamy	S, SE, SW	10%	<5	>30%	<25000	0,59	6,9
27	Other Sources	Existing	Studena Bara- Vakuf	Pchinja	7561917	4654992	290	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	955,6	578,9	0,48	Coarse loamy	S, SE, SW	1%	5-10	>30%	<25000	0,59	6,9
28	Study for priority dams, 1980	New	Dam Vragoturce	Bistrica	7571348	4680121	284		North-East	Staro Nagorichane	Kum.-Lipkovsko pole	921,7	611,7	0,47	Coarse loamy	S, SE, SW	12%	5-10	>30%	<25000	0,38	6,1
29	ToR	Existing	HMS Dovezance-Jacince-Klechovce	Kriva Reka	7575534	4664452	250	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	944,9	589,5	0,44	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0,59	7,0
30	Other Sources	Existing	Slavishko Pole	Kriva Reka	7599579	4670511	250	Rankovce	North-East	Rankovce	Kum.-Lipkovsko pole	907,9	626,0	0,43	Gravel to coarse loamy	S, SE, SW	3%	<5	>30%	<25000	0,43	6,2
31	ToR	New	Dam Gorno Gradishte	dam	7588855	4656141	535	Kratovo	North-East	Kratovo	Zletovica	920,3	613,9	0,43	Gravel to coarse loamy	NW, NE	12%	10-20	>30%	25000-35000	0,50	5,9
32	Other Sources	Existing	Dragomanci	Pchinja	7570529	4676710	136	Staro Nagorichane	North-East	Staro Nagorichane	Kum.-Lipkovsko pole	936,8	597,6	0,47	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0,38	6,6
33	ToR	Existing	HMS Shupli Kamen-Zubovce	Pchinja	7569133	4663573	122	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	948,5	585,9	0,48	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0,59	7,0
34	Other Sources	Existing	Mozdivnjak	local river	7605100	4667979	110	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	870,7	663,1	0,43	Fine to coarse loamy	NW, NE	16%	5-10	>30%	35000-45000	0,93	6,2
35	Other Sources	New	Konopnica	local river	7607670	4670693	75	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	869,8	664,2	0,43	Fine to coarse loamy	NW, NE	12%	<5	>30%	35000-45000	0,93	6,3
36	ToR	New	Dam Povishnica	dam	7593925	4657715	68	Kratovo	North-East	Kratovo	Zletovica	880,7	653,5	0,43	Coarse loamy	NW, NE	17%	<5	>30%	25000-35000	0,50	5,6
37	Other Sources	Existing	Rechica	local river	7558288	4671064	60	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	932,3	601,9	0,49	Gravel to coarse loamy	E,W	2%	<5	>30%	<25000	0,59	6,5
38	Study for priority dams, 1980	New	Dam Milutinci	Milutinska	7593489	4674891	50		North-East	Rankovce	Kum.-Lipkovsko pole	892,8	640,2	0,43	Coarse loamy	S, SE, SW	7%	<5	>30%	<25000	0,43	5,8
39	Other Sources	Existing	Otoshnica	small dam	7589268	4674520	43	Rankovce	North-East	Rankovce	Kum.-Lipkovsko pole	868,8	664,6	0,43	Coarse loamy	S, SE, SW	11%	<5	>30%	<25000	0,43	5,7
40	ToR	Existing	Kalin Kamen	spring	7619312	4670577	20	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	637,2	893,8	0,43	Coarse loamy	NW, NE	16%	5-10	>30%	35000-45000	0,93	5,2
41	ToR	Existing	Vlashki Kolibi	spring	7617833	4671127	20	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	659,6	872,2	0,43	Coarse loamy	NW, NE	21%	5-10	>30%	35000-45000	0,93	5,0


Existing and possible small irrigation scheme
North-East
Vragoturce
Dragomanci
Recica
Recica
Otoshnica
Milutinci
Slavishko Pole
Konopnica
Vlaski Kolibi
Kalin Kamen
Mozdivnjak
Shupli Kamen-Zubovce
Dovezence-Jacince
Gorno Kratovo
Studena Bara-Vakuf
Dam Markovci
Dam Gorno Gradishte
Dam Povishnica
Irrigated area (ha)
0.00 - 25.00
25.01 - 50.00
50.01 - 100.00
100.01 - 200.00
200.01 - 1062.82

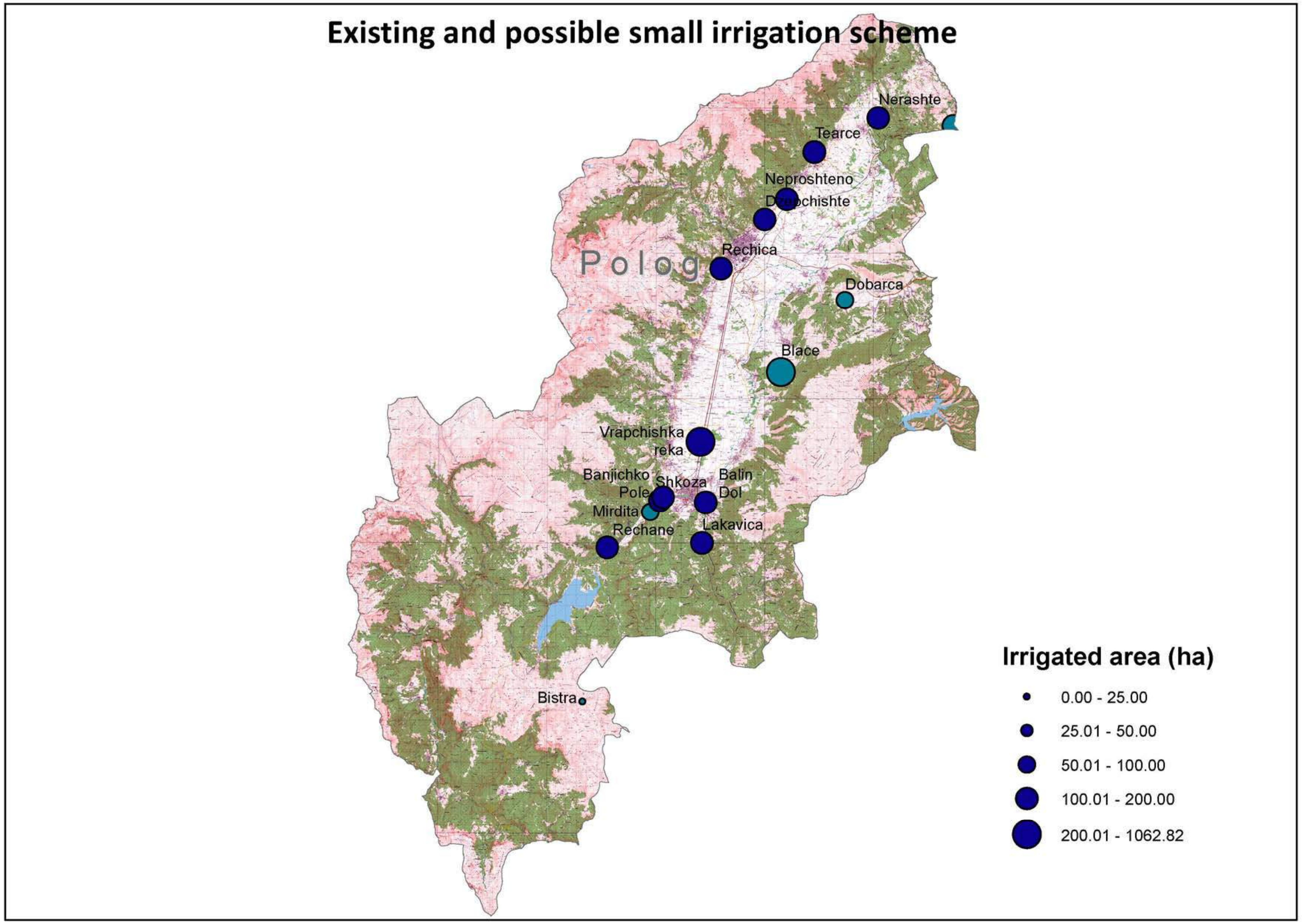
PELAGONIJA REGION

Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha	Intake (Municipality	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha	Sum Criteria
42	Study for priority dams, 1980	New	Dam Dabnica	Dabnicka	7547413	4581862	80		Pelagonija	Prilep	Prilepsko Pole	854,8	677,9	0,50	Fine to coarse loamy	S, SE, SW	7%	<5	20-25%	>45000	1,69	6,4
43	Other Sources	Existing	Volkovo Prilep	small dam	7547632	4572597	42	Prilep	Pelagonija	Prilep	Prilepsko pole	852,8	680,7	0,50	Fine to coarse loamy	S, SE, SW	8%	<5	20-25%	>45000	1,69	6,4
44	ToR	Existing	HMS Topolchani	Crna	7534818	4565321	250	Mogila	Pelagonija	Prilep	Prilepsko pole	882,2	651,4	0,50	Coarse loamy	S, SE, SW	2%	<5	20-25%	>45000	1,57	6,3
45	Study for priority dams, 1980	New	Dam Podmol	Pisokolska	7548182	4562514	500		Pelagonija	Prilep	Prilepsko Pole	867,3	665,8	0,50	Coarse loamy	S, SE, SW	5%	5-10	20-25%	>45000	1,69	6,2
46	Other Sources	Existing	Krushevica	small dam	7555480	4560644	47	Prilep	Pelagonija	Prilep	Prilepsko pole	862,2	670,8	0,00	Coarse loamy	E,W	7%	10-20	20-25%	>45000	1,69	6,0
47	Study for priority dams, 1980	New	Krusevica	Krusevicka	7554337	4563462	50		Pelagonija	Prilep	Prilepsko Pole	841,9	691,9	0,0	Coarse loamy	S, SE, SW	12%	10-20	20-25%	>45000	1,69	6,0
48	ToR	Existing	Small Irr.scheme Belovodica, dam Belovodica 2	dam	7558764	4577014	25	Prilep	Pelagonija	Prilep	Prilepsko pole	846,7	687,0	0,52	Coarse loamy	NW, NE	13%	10-20	20-25%	>45000	1,69	5,8
49	Study for priority dams, 1980	New	Dam Pesterica	Oreovica	7551467	4582776	500		Pelagonija	Prilep	Prilepsko Pole	831,7	700,8	0,50	Fine to coarse loamy	NW, NE	13%	5-10	20-25%	>45000	1,69	5,7
50	Study for priority dams, 1980	New	Dam Bolno	Bolska	7497175	4553144	270		Pelagonija	Resen	Crn Drim	807,1	725,9	0,58	Coarse loamy	S, SE, SW	6%	<5	20-25%	>45000	1,37	5,7
51	ToR	Existing	Intake on Kranska River (Krani)	Kranska	7509419	4532678	153	Resen	Pelagonija	Resen	Crn Drim	814,0	718,1	0,58	Fine to coarse loamy	S, SE, SW	7%	10-20	20-25%	>45000	1,37	5,6
52	ToR	Existing	Intake on Brajchinska River (Ljubojno)	Brajchinska	7511967	4527999	84	Resen	Pelagonija	Resen	Crn Drim	816,2	716,2	0,58	Fine to coarse loamy	E,W	4%	10-20	20-25%	>45000	1,37	5,5
53	Other Sources	New	Selce	dam on Selechka River	7522726	4585251	227	Krushevo	Pelagonija	Krushevo	Prilepsko Pole	861,6	672,2	0,50	Coarse loamy	S, SE, SW	8%	<5	20-25%	>45000	0,71	5,5
54	Other Sources	Existing	Krushevo	Selichka	7524049	4579444	220	Krushevo	Pelagonija	Krushevo	Prilepsko pole	867,2	666,9	0,50	Fine to coarse loamy	E,W	4%	<5	20-25%	>45000	0,71	5,5
55	Other Sources	Existing	Kurbinovo	Kurbinovska	7506190	4537896	78	Resen	Pelagonija	Resen	Crn Drim	805,9	725,8	0,58	Gravel loamy to loamy skeletal	S, SE, SW	9%	10-20	20-25%	>45000	1,37	5,5
56	Other Sources	Existing	Buchin	Crna	7526559	4570534	120	Krushevo	Pelagonija	Krushevo	Prilepsko pole	879,1	654,5	0,50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	>45000	0,71	5,4
57	ToR	Existing	Small Dam Makazi	dam	7506002	4546265	95	Resen	Pelagonija	Resen	Crn Drim	807,1	724,9	0,58	Gravel loamy to loamy skeletal	NW, NE	8%	<5	20-25%	>45000	1,30	5,4
58	Other Sources	Existing	Borino 1, 2	small dam	7524142	4588470	120	Krushevo	Pelagonija	Krushevo/Dolneni	Prilepsko pole	873,2	660,5	0,50	Fine to coarse loamy	NW, NE	2%	<5	20-25%	>45000	0,63	5,4
59	Other Sources	Existing	Crna (upstream)	Crna	7510586	4572131	250	Demir Hisar	Pelagonija	Demir Hisar	Bitolsko Pole	866,9	666,6	0,50	Coarse loamy	S, SE, SW	3%	<5	20-25%	35000-45000	0,94	5,3
60	Study for priority dams, 1980	New	Dam Obednik	Obednicka	7512037	4556892	368		Pelagonija	Demir Hisar	Bitolsko Pole	862,1	671,7	0,50	Coarse loamy	NW, NE	5%	<5	20-25%	35000-45000	0,94	5,1
61	Other Sources	Existing	Velushka Reka	Velushka	7530163	4531802	75	Bitola	Pelagonija	Bitola	Bitolsko Pole	871,5	662,8	0,50	Fine to coarse loamy	E,W	6%	<5	20-25%	<25000	0,67	5,0
62	Study for priority dams, 1980	New	Dam Kociste	Zaba	7515089	4579785	130		Pelagonija	Demir Hisar	Bitolsko Pole	846,9	687,2	0,50	Coarse loamy	S, SE, SW	19%	5-10	20-25%	35000-45000	0,94	5,0
63	Study for priority dams, 1980	New	Dam Rastojica	Zaba	7516292	4576312	721		Pelagonija	Demir Hisar	Bitolsko Pole	864,0	669,0	0,50	Coarse loamy	S, SE, SW	12%	<5	20-25%	35000-45000	0,94	5,0
64	Other Sources	Existing	Bistrica	local river	7530604	4537383	200	Bitola	Pelagonija	Bitola	Bitolsko Pole	882,3	651,5	0,50	Coarse loamy	S, SE, SW	2%	<5	20-25%	<25000	0,67	5,0
65	Other Sources	Existing	Dihovo	Dihovska	7522840	4543023	270	Bitola	Pelagonija	Bitola	Bitolsko Pole	841,3	692,4	0,50	Fine to coarse loamy	NW, NE	8%	<5	20-25%	<25000	0,67	5,0
66	Study for priority dams, 1980	New	Dam Vodenica	Leva	7501219	4557876	125		Pelagonija	Resen	Crn Drim	792,2	740,3	0,58	Coarse loamy	S, SE, SW	28%	5-10	20-25%	>45000	1,37	5,0
67	Other Sources	New	Galabavci	Strezevo dam	7517029	4555714	300	Bitola	Pelagonija	Bitola	Bitolsko Pole	874,3	659,3	0,50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	<25000	0,67	5,0
68	Other Sources	New	Sekirani	Strezevo dam	7517071	4555678	300	Bitola	Pelagonija	Bitola	Bitolsko Pole	878,1	655,6	0,50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	<25000	0,67	5,0
69	Other Sources	Existing	Graeshnica	local river	7529634	4528496	150	Bitola	Pelagonija	Bitola	Bitolsko Pole	870,3	663,9	0,50	Fine to coarse loamy	E,W	7%	5-10	20-25%	<25000	0,67	4,9
70	Study for priority dams, 1980	New	Dam Brajcino	Brajcinska	7517336	4530454	100		Pelagonija	Resen	Crn Drim	777,9	753,8	0,58	Coarse loamy	NW, NE	19%	10-20	20-25%	>45000	1,37	4,9
71	Other Sources	Existing	Krushevsko Ezero	small dam	7520810	4581800	106	Krushevo	Pelagonija	Krushevo	Prilepsko pole	735,4	797,0	0,50	Coarse loamy	S, SE, SW	20%	<5	20-25%	>45000	0,71	4,9
72	ToR	Existing	Small Irr.scheme Brailovo, dam Brailovo	Suvodolichka	7539642	4593508	240	Dolneni	Pelagonija	Dolneni	Prilepsko pole	862,7	670,9	0,50	Coarse loamy	S, SE, SW	6%	5-10	20-25%	35000-45000	0,45	4,9
73	Other Sources	New	Lera-Kazhani	Strezevo dam	7514735	4554565	200	Bitola	Pelagonija	Bitola	Bitolsko Pole	839,7	693,5	0,53	Fine loamy to coarse loamy	N	4%	<5	20-25%	<25000	0,67	4,8
74	ToR	Existing	Small Irr.scheme Desovo, dam Desovo 1	Suvodolichka	7543046	4593010	280	Dolneni	Pelagonija	Dolneni	Prilepsko pole	859,0	674,3	0,50	Coarse loamy	S, SE, SW	4%	5-10	20-25%	35000-45000	0,45	4,8
75	Other Sources	Existing	Debreshte	Crna	7529810	4587799	251	Dolneni	Pelagonija	Dolneni	Prilepsko pole	878,1	655,5	0,50	Gravel to coarse loamy	S, SE, SW	1%	5-10	20-25%	35000-45000	0,45	4,7
76	Study for priority dams, 1980	New	Dam Cerovo	Boiska	7509411	4564250	598		Pelagonija	Demir Hisar	Bitolsko Pole	847,1	686,1	0,50	Coarse loamy	NW, NE	21%	5-10	20-25%	35000-45000	0,94	4,7
77	Other Sources	Existing	Bratin Dol	small dam	7520865	4546863	41	Bitola	Pelagonija	Bitola	Bitolsko Pole	829,3	704,0	0,50	Fine to coarse loamy	S, SE, SW	11%	5-10	20-25%	<25000	0,67	4,7
78	Other Sources	Existing	Baldovenci	small dam	7544301	4541683	52	Novaci	Pelagonija	Novaci	Bitolsko Pole	872,8	660,9	0,50	Coarse loamy	S, SE, SW	8%	<5	20-25%	<25000	0,39	4,6
79	Study for priority dams, 1980	New	Dam Bukri	Crna	7543412	4533951	1886		Pelagonija	Bitola	Bitolsko Pole	881,8	651,7	0,26	Coarse loamy	S, SE, SW	5%	<5	20-25%	<25000	0,49	4,6
80	Other Sources	Existing	Suvodolsko/REK Ezerce	small dam	7546003	4547126	468	Novaci	Pelagonija	Novaci	Bitolsko Pole	882,4	651,3	0,50	Coarse loamy	S, SE, SW	1%	<5	20-25%	<25000	0,39	4,5


Existing and possible small irrigation scheme
Brailovo
Desovo
Borino 1, 2
Debreshte
Selce
Kuchevsko Ezero
Kocishte
Krushevo
Rastojica
Crna (upstream)
Buchin
Dabnica
Pesterica
Belovodica
Volkovo
Prilep
Topolchani
Cerovo
Podmol
Krusevica
Krushevica
Pelagonija
Vodenica
Obednik
Galabavci
Shemnica (upstream)
Sekirnik
Lera-Kazhani
Bolno
Suvodolsko/REK Ezerce
Bratin Dol
Makazi
Dihovo
Baldovenci
Kurbinovo
Bistrica
Rusalija
Bukri
Velushka Reka
Krani
Brajcino
Graeshnica
Ljubojno
Irrigated area (ha)
<25
25.01 - 50.00
50.01 - 100.00
100.01 - 200.00
>200

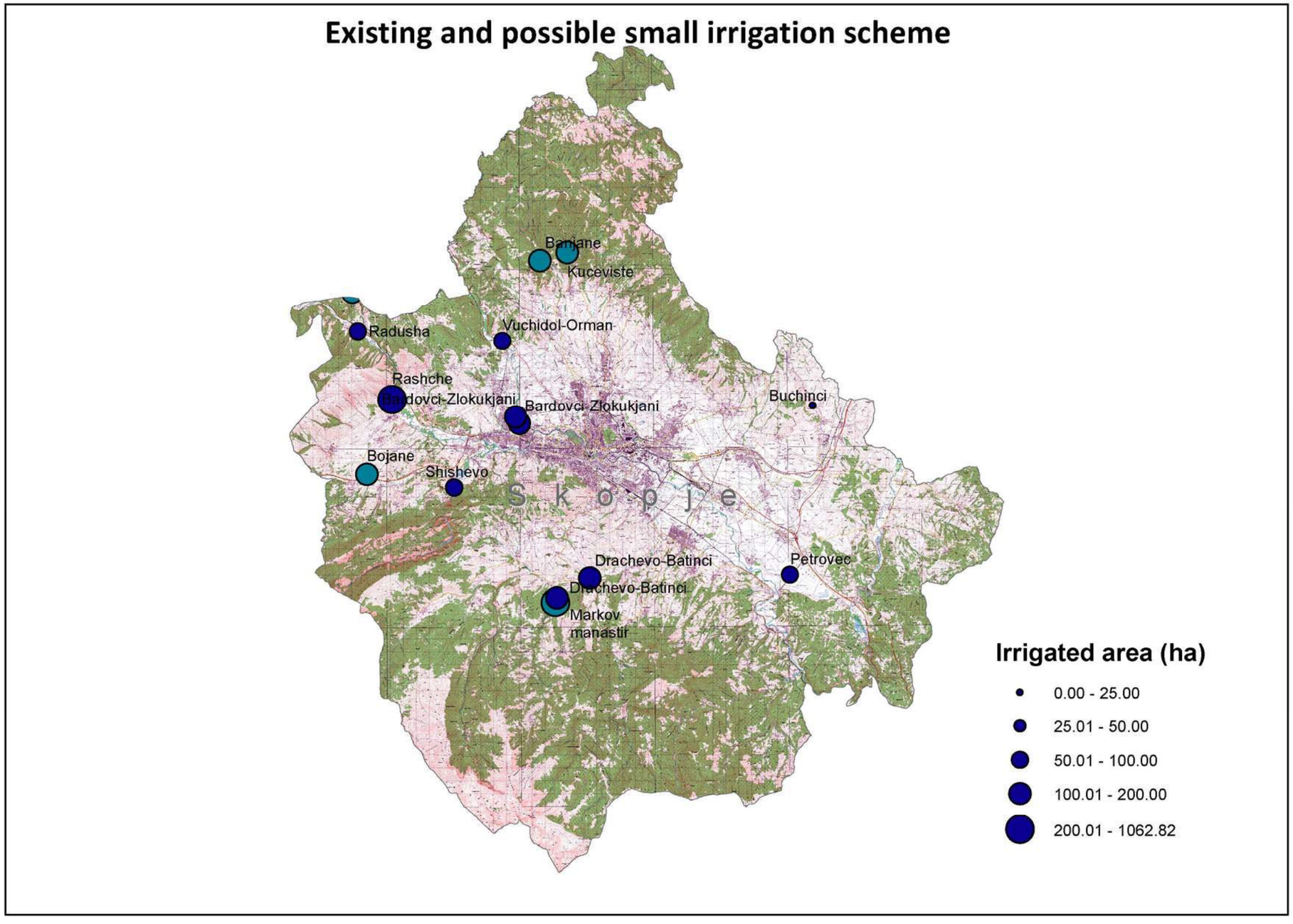
POLOG REGION

Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the area	Distance from mun.centar	Unemployed	Income per ha	Farmers per ha	Sum Criteria
81	Other Sources	New	Tearce	local river	7504779	4660367	140	Tearce	Polog	Tearce	Polog	906,3	627,8	0,52	Fine to coarse loamy	S, SE, SW	5%	<5	25-30%	<25000	1,55	7,0
82	Other Sources	Existing	Rechica	local river	7495862	4649230	114	Tetovo	Polog	Tetovo	Polog	912,7	621,4	0,48	Fine to coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	1,39	6,7
83	Other Sources	Existing	Dzepchishte	local river	7500027	4653874	160	Tetovo	Polog	Tetovo	Polog	912,7	621,5	0,52	Fine to coarse loamy	S, SE, SW	3%	<5	25-30%	25000-35000	1,39	6,7
84	Other Sources	Existing	Neproshteno	local river	7502123	4655858	114	Tearce	Polog	Tearce	Polog	913,7	620,3	0,52	Fine to coarse loamy	S, SE, SW	3%	<5	25-30%	<25000	1,45	6,5
85	Study for priority dams, 1980	New	Dam Mirdita	No name creek	7489090	4625911	100		Polog	Gostivar	Polog	882,6	651,4	0,49	Coarse loamy	S, SE, SW	9%	<5	25-30%	25000-35000	1,33	6,2
86	Other Sources	Existing	Shkoza	Vardar	7489992	4627022	142	Gostivar	Polog	Gostivar	Polog	885,2	648,5	0,49	Coarse loamy	NW, NE	5%	<5	25-30%	25000-35000	1,33	6,1
87	Other Sources	Existing	Balin Dol	Lakavica	7494385	4626841	116	Gostivar	Polog	Gostivar	Polog	897,7	635,8	0,49	Coarse loamy	NW, NE	4%	<5	25-30%	25000-35000	1,33	6,1
88	Other Sources	Existing	Lakavica	Lakavica	7494010	4622948	161	Gostivar	Polog	Gostivar	Polog	894,1	640,4	0,49	Coarse loamy	E,W	5%	<5	25-30%	25000-35000	1,33	6,1
89	Other Sources	Existing	Vrapchishka reka	Vrapchishka	7493883	4632632	280	Vrapchishte	Polog	Vrapchishte	Polog	894,9	639,1	0,50	Fine to coarse loamy	E,W	2%	<5	25-30%	<25000	1,04	6,0
90	Other Sources	Existing	Banjichko Pole	Vardar	7490321	4627334	140	Gostivar	Polog	Gostivar	Polog	891,0	643,0	0,49	Coarse loamy	NW, NE	3%	<5	25-30%	25000-35000	1,33	6,0
91	Other Sources	Existing	Nerashte	small dam	7510882	4663605	111	Jegunovce	Polog	Tearce/Jegunovce	Polog	884,3	648,4	0,52	Fine to coarse loamy	S, SE, SW	15%	<5	25-30%	<25000	1,36	5,9
92	Study for priority dams, 1980	New	Dam Dobarca	Dobarce	7507690	4646189	90		Polog	Zhelino	Polog	890,0	644,3	0,44	Coarse loamy	S, SE, SW	11%	<5	25-30%	<25000	1,01	5,9
93	ToR	Existing	Rechane	River Duf	7484968	4622540	120	Gostivar	Polog	Gostivar	Polog	848,6	685,0	0,49	Coarse loamy	NW, NE	12%	<5	25-30%	25000-35000	1,33	5,8
94	Study for priority dams, 1980	New	Dam Blace	No name creek	7501579	4639325	661		Polog	Brvenica	Polog	899,5	633,9	0,50	Coarse loamy	E,W	9%	5-10	25-30%	<25000	0,95	5,5


Existing and possible small irrigation scheme
Nerashte
Tearce
Neproshteno
Dzepchishte
Rechica
Polog
Dobarca
Blace
Vrapchishka reka
Banjichko Pole
Shkoza
Balin Dol
Mirdita
Rechane
Lakavica
Bistra
Irrigated area (ha)
0.00 - 25.00
25.01 - 50.00
50.01 - 100.00
100.01 - 200.00
200.01 - 1062.82

SKOPJE REGION

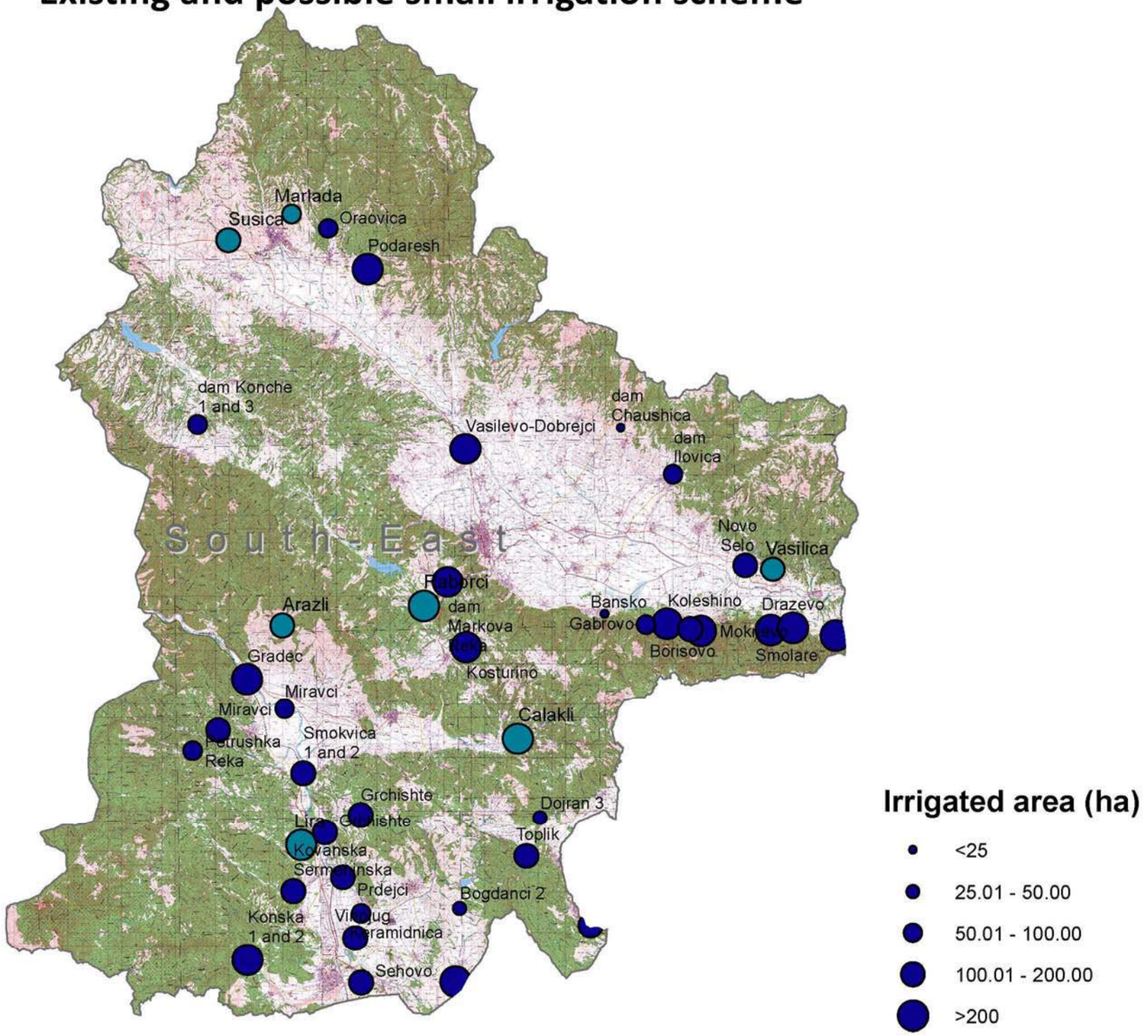
Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the area	Distance from mun.centar	Unemployed	Income per ha	Farmers per ha	Sum Criteria
95	ToR	Existing	Small Irr.scheme Rashche-Vlae-Vrelo	Vardar	7521145	4654510	325	Saraj	Skopje	Saraj	Skopsko Pole	948,9	585,5	0,45	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	2,05	7,7
96	Other Sources	Existing	Radusha	Vardar	7518491	4659833	71	Saraj	Skopje	Saraj	Skopsko Pole	942,9	591,3	0,47	Coarse loamy	S, SE, SW	2%	5-10	25-30%	25000-35000	2,05	7,7
97	ToR	Existing	Small Irr.scheme Orman-Vuchidol	Lepenec	7529709	4659085	85	Gjorche Petrov	Skopje	Gjorche Petrov	Skopsko Pole	949,9	584,7	0,43	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	2,76	7,7
98	ToR	Existing	Small Irr.scheme Shishevo-Grchec-Saraj	Treska	7525947	4647724	56	Saraj	Skopje	Saraj	Skopsko Pole	950,5	583,9	0,44	Coarse loamy	E,W	2%	<5	25-30%	25000-35000	2,05	7,6
99	ToR	Existing	Small Irr.scheme Drachevo-Batinci	Markova	7533924 7	4639190 46	110	Sopishte	Skopje	Sopishte/Studenichani	Skopsko Pole	955,9	578,5	0,42	Coarse loamy	NW, NE	2%	<5	25-30%	25000-35000	2,27	7,4
100	ToR	Existing	Small Irr.scheme Bardovci-Zlokukjani	Lepenec	7531034 7530724	4652692 4653174	140	Karposh	Skopje	Karposh	Skopsko Pole	955,3	579,2	0,43	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	1,90	7,3
101	Study for priority dams, 1980	New	Dam Radusa	Raduska	7518074	4662846	150		Skopje	Saraj	Skopsko pole	941,1	593,2	0,52	Coarse loamy	S, SE, SW	14%	5-10	25-30%	25000-35000	2,05	7,3
102	Study for priority dams, 1980	New	Dam Markov manastir	Markova	7533797	4638813	203		Skopje	Studenichani	Skopsko pole	923,2	611,2	0,42	Coarse loamy	S, SE, SW	17%	5-10	25-30%	35000-45000	2,05	7,3
103	Study for priority dams, 1980	New	Dam Bojane	Bojanska	7519185	4648745	188		Skopje	Saraj	Skopsko pole	927,8	606,5	0,44	Coarse loamy	S, SE, SW	12%	5-10	25-30%	25000-35000	2,05	7,1
104	Study for priority dams, 1980	New	Dam Banjane	Banjanska	7532599	4665328	152		Skopje	Chucher - Sandevo	Skopsko pole	908,3	625,9	0,43	Fine to coarse loamy	S, SE, SW	7%	<5	25-30%	35000-45000	0,72	6,3
105	Other Sources	Existing	Petrovec	Vardar	7551985	4640969	100	Petrovec	Skopje	Petrovec	Skopsko Pole	964,3	570,3	0,42	Gravel to coarse loamy	S, SE, SW	1%	<5	25-30%	<25000	0,64	6,2
106	ToR	Existing	Dam Buchinci	small dam	7553734	4654055	100	Ilinden	Skopje	Ilinden	Skopsko Pole	930,4	603,6	0,42	Gravel to coarse loamy	S, SE, SW	6%	5-10	25-30%	25000-35000	0,75	6,2
107	Study for priority dams, 1980	New	Dam Kuceviste	Kuceviska	7534719	4665963	130		Skopje	Chucher - Sandevo	Skopsko pole	894,4	639,0	0,43	Fine to coarse loamy	S, SE, SW	11%	<5	25-30%	35000-45000	0,72	5,7


Existing and possible small irrigation scheme
Banjane
Kuceviste
Radusha
Vuchidol-Orman
Rashche
Bardovci-Zlokukjani
Bardovci-Zlokukjani
Buchinci
Bojane
Shishevo
S k o p j e
Drachevo-Batinci
Drachevo-Batinci
Markov manastir
Petrovec
Irrigated area (ha)
0.00 - 25.00
25.01 - 50.00
50.01 - 100.00
100.01 - 200.00
200.01 - 1062.82

SOUTH EAST REGION

Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha	Sum Criteria
108	Cons.Avail.Docum.	Existing	Sehovo	Vardar	7628850	4556245	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	1003.0	532.0	0.53	Fine to coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18	7.1
109	Cons.Avail.Docum.	Existing	Vinojug	Vardar	7628411	4559557	150	Gevgelija	South-East	Gevgelija	Juzen Vardar	1000.8	534.1	0.53	Fine to coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	2.18	7.0
110	Cons.Avail.Docum.	Existing	Miravci (small dam)	small dam	7618217	4575014	174	Gevgelija	South-East	Gevgelija	Juzen Vardar	997.7	537.2	0.53	Fine to coarse loamy	E,W	3%	<5	<20%	35000-45000	2.18	7.0
111	ToR	Existing	Konska 1 and 2	Konska	7620393	4557931	571	Gevgelija	South-East	Gevgelija	Juzen Vardar	989.9	544.9	0.53	Fine to coarse loamy	S, SE, SW	3%	<5	<20%	35000-45000	2.18	7.0
112	Cons.Avail.Docum.	Existing	Prdejci	Vardar	7627501	4564051	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	1001.7	533.3	0.53	Coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	2.18	6.9
113	Cons.Avail.Docum.	Existing	Miravci (Stara)	Stara	7623163	4576598	100	Gevgelija	South-East	Gevgelija	Juzen Vardar	998.9	536.1	0.53	Coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18	6.9
114	Cons.Avail.Docum.	Existing	Keramidnica	Vardar	7628822	4561397	80	Bogdanci	South-East	Gevgelija	Juzen Vardar	1002.6	532.4	0.53	Coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18	6.9
115	ToR	Existing	HMS Smokvica	Vardar	7624519	4571814	110	Gevgelija	South-East	Gevgelija	Juzen Vardar	1000.4	534.5	0.53	Coarse loamy	S, SE, SW	2%	5-10	<20%	35000-45000	2.18	6.9
116	Cons.Avail.Docum.	Existing	Kovanska, Sermeninska	Kovanska,Sermeninska	7623807	4563051	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	993.4	541.2	0.53	Fine to coarse loamy	E,W	4%	5-10	<20%	35000-45000	2.18	6.9
117	Cons.Avail.Docum.	Existing	Selemli	dam Selemli	7635856	4556307	350	Bogdanci	South-East	Gevgelija/Bogdanci	Juzen Vardar	982.7	552.0	0.53	Fine to coarse loamy	S, SE, SW	5%	5-10	<20%	25000-35000	2.14	6.8
118	Cons.Avail.Docum.	Existing	Petrushka Reka	Petrushka (Stara)	7616299	4573487	100	Gevgelija	South-East	Gevgelija	Juzen Vardar	937.3	596.1	0.53	Fine to coarse loamy	S, SE, SW	16%	<5	<20%	35000-45000	2.18	6.7
119	Cons.Avail.Docum.	Existing	Gradec	Vardar	7620375	4578828	264	Gevgelija	South-East	Valandovo	Juzen Vardar	997.8	537.3	0.53	Coarse loamy	S, SE, SW	3%	<5	<20%	>45000	1.98	6.7
120	Cons.Avail.Docum.	Existing	Bogdanci 2	small dam	7636178	4561767	37	Bogdanci	South-East	Bogdanci	Juzen Vardar	982.0	552.9	0.53	Fine to coarse loamy	N	3%	<5	<20%	25000-35000	2.12	6.7
121	Cons.Avail.Docum.	Existing	Grchishte	local river, dam	7626144	4567392	150	Valandovo	South-East	Valandovo	Juzen Vardar	984.5	550.4	0.53	Fine to coarse loamy	S, SE, SW	8%	5-10	<20%	>45000	1.98	6.7
122	Study for priority dams, 1980	New	Dam Arazli	Arazliska	7623001	4582782	150		South-East	Valandovo	Juzen Vardar	996.1	539.4	0.52	Coarse loamy	S, SE, SW	9%	<5	<20%	>45000	1.98	6.7
123	Study for priority dams, 1980	New	Dam Lira	Zuica	7624407	4566452	370		South-East	Gevgelija	Juzen Vardar	1000.2	535.0	0.53	Coarse loamy	E,W	3%	5-10	<20%	35000-45000	2.16	6.5
124	Cons.Avail.Docum.	Existing	Vasilevo-Dobrejci	Vodocha dam	7636609	4595895	300	Vasilevo	South-East	Vasilevo	Strumicko Pole	960.0	574.5	0.52	Coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	1.60	6.4
125	ToR	Existing	Dam Markova Reka, HMS Strumichko Pole	dam	7635283	4586037	400	Strumica	South-East	Strumica	Strumicko Pole	961.6	573.0	0.52	Fine to coarse loamy	NW, NE	2%	<5	<20%	35000-45000	1.79	6.3
126	Cons.Avail.Docum.	Existing	Podaresh	Plavaja	7629347	4609307	250	Radovish	South-East	Radovish	Radovishko Pole	941.3	593.0	0.53	Fine to coarse loamy	S, SE, SW	5%	<5	<20%	>45000	1.30	6.2
127	ToR	Existing	Small Irr.scheme Bansko, HMS Strumichko Pole	local river	7646946	4583656	15	Strumica	South-East	Strumica	Strumicko Pole	956.2	578.2	0.52	Fine to coarse loamy	NW, NE	10%	<5	<20%	35000-45000	1.79	6.2
128	Cons.Avail.Docum.	New	Kosturino	dam on Bukova River	7636664	4581173	400	dam on Bukova River	South-East	Strumica	Strumicko Pole	915.9	618.1	0.52	Fine loamy to coarse loamy	E,W	5%	5-10	<20%	35000-45000	1.79	6.2
129	ToR	Existing	Small Irr.scheme Gabrovo, HMS Strumichko Pole	local river	7650025	4582869	60	Strumica	South-East	Strumica	Strumicko Pole	953.1	581.7	0.52	Fine to coarse loamy	N	11%	5-10	<20%	35000-45000	1.79	6.1
130	Cons.Avail.Docum.	Existing	Oraovica	Oraovachka	7626393	4612310	67	Radovish	South-East	Radovish	Radovishko Pole	927.5	606.7	0.53	Fine to coarse loamy	E,W	6%	<5	<20%	>45000	1.30	6.0
131	Study for priority dams, 1980	New	Dam Susica	Kodza Dere	7618950	4611434	130		South-East	Radovish	Radovishko Pole	918.2	616.0	0.53	Fine to coarse loamy	S, SE, SW	14%	<5	<20%	>45000	1.30	5.9
132	Study for priority dams, 1980	New	Dam Raborci	Markova	7633505	4584242	300		South-East	Strumica	Strumicko pole	924.2	609.8	0.52	Gravel to coarse loamy	S, SE, SW	11%	<5	<20%	35000-45000	1.79	5.8
133	Study for priority dams, 1980	New	Dam Calakli	Kodza Dere, Anska	7640505	4574363	228	Dojran	South-East	Valandovo	Juzen Vardar	976.4	558.0	0.53	Gravel to coarse loamy	S, SE, SW	7%	5-10	<20%	25000-35000	1.43	5.8
134	ToR	Existing	Dam Novoselska, HMS Strumichko Pole	dam	7657445	4587259	200	Novo Selo	South-East	Novo Selo	Strumicko Pole	966.0	568.7	0.52	Fine to coarse loamy	S, SE, SW	3%	<5	<20%	35000-45000	0.69	5.6
135	Cons.Avail.Docum.	Existing	Dojran 3	small dam	7642156	4568481	38	Dojran	South-East	Dojran	Juzen Vardar	971.7	562.7	0.50	Fine to coarse loamy	S, SE, SW	6%	5-10	<20%	25000-35000	0.94	5.6
136	ToR	Existing	Dam Ilovica, HMS Strumichko Pole	dam	7652041	4594009	90	Bosilovo	South-East	Bosilovo	Strumicko Pole	957.6	577.0	0.52	Fine to coarse loamy	S, SE, SW	3%	5-10	<20%	35000-45000	0.90	5.6
137	Study for priority dams, 1980	New	Dam Marlada	Rakliska	7623670	4613372	100		South-East	Radovish	Radovishko Pole	911.0	623.8	0.53	Coarse loamy	S, SE, SW	30%	<5	<20%	>45000	1.30	5.6
138	ToR	Existing	Dam Chaushica, HMS Strumichko Pole	river Hamzali	7648159	4597524	50	Bosilovo	South-East	Bosilovo	Strumicko Pole	937.7	596.4	0.52	Coarse loamy	S, SE, SW	6%	5-10	<20%	35000-45000	0.90	5.5
139	ToR	Existing	Small Irr.scheme Smolare, HMS Strumichko Pole	local river	7659317	4582455	280	Novo Selo	South-East	Novo Selo	Strumicko Pole	950.8	583.8	0.52	Fine to coarse loamy	N	9%	<5	<20%	35000-45000	0.69	5.4
140	ToR	Existing	Small Irr.scheme Mokrievo, HMS Strumichko Pole	local river	7654140	4582395	270	Novo Selo	South-East	Novo Selo	Strumicko Pole	946.3	588.5	0.52	Fine to coarse loamy	N	9%	<5	<20%	35000-45000	0.69	5.4
141	ToR	Existing	Small Irr.scheme Borisovo, HMS Strumichko Pole	local river	7653330	4582541	140	Novo Selo	South-East	Novo Selo	Strumicko Pole	951.9	582.7	0.52	Fine to coarse loamy	N	5%	<5	<20%	35000-45000	0.69	5.4
142	ToR	Existing	Small Irr.scheme Koleshino, HMS Strumichko Pole	local river	7651633	4582927	250	Strumica	South-East	Novo Selo	Strumicko Pole	953.9	580.9	0.52	Fine to coarse loamy	NW, NE	5%	5-10	<20%	35000-45000	0.69	5.4
143	Cons.Avail.Docum.	Existing	Sretenovo	Dojran Lake	7645906	4560493	120	Dojran	South-East	Dojran	Juzen Vardar	955.5	578.7	0.50	Fine to coarse loamy	NW, NE	6%	<5	<20%	25000-35000	0.94	5.4
144	Study for priority dams, 1980	New	Dam Vasilica	Vasilica	7659493	4586980	148		South-East	Novo Selo	Strumicko pole	960.6	573.8	0.52	Fine to coarse loamy	S, SE, SW	10%	<5	<20%	35000-45000	0.69	5.4
145	ToR	Existing	Small Irr.scheme Drazhevo, HMS Strumichko Pole	local river	7660955	4582642	230	Novo Selo	South-East	Novo Selo	Strumicko Pole	950.9	583.6	0.52	Fine to coarse loamy	N	10%	<5	<20%	35000-45000	0.69	5.3
146	Cons.Avail.Docum.	Existing	Toplik	dam	7641152	4565619	180	Dojran	South-East	Dojran	Juzen Vardar	967.3	567.5	0.53	Gravel to coarse loamy	NW, NE	3%	5-10	<20%	25000-35000	0.94	5.2
147	ToR	Existing	Small Irr.scheme Staro Konjarevo, HMS Strumichko	local river	7664153	4582044	270	Novo Selo	South-East	Novo Selo	Strumicko Pole	949.7	585.3	0.52	Fine to coarse loamy	N	10%	5-10	<20%	35000-45000	0.69	5.2
148	ToR	Existing	Dam Konche 3 and 1, HMS Radovishko Pole	dam	7616659	4597741	100	Konche	South-East	Konche	Radovishko Pole	915.3	618.7	0.43	Coarse loamy	NW, NE	4%	<5	<20%	>45000	0.35	4.9

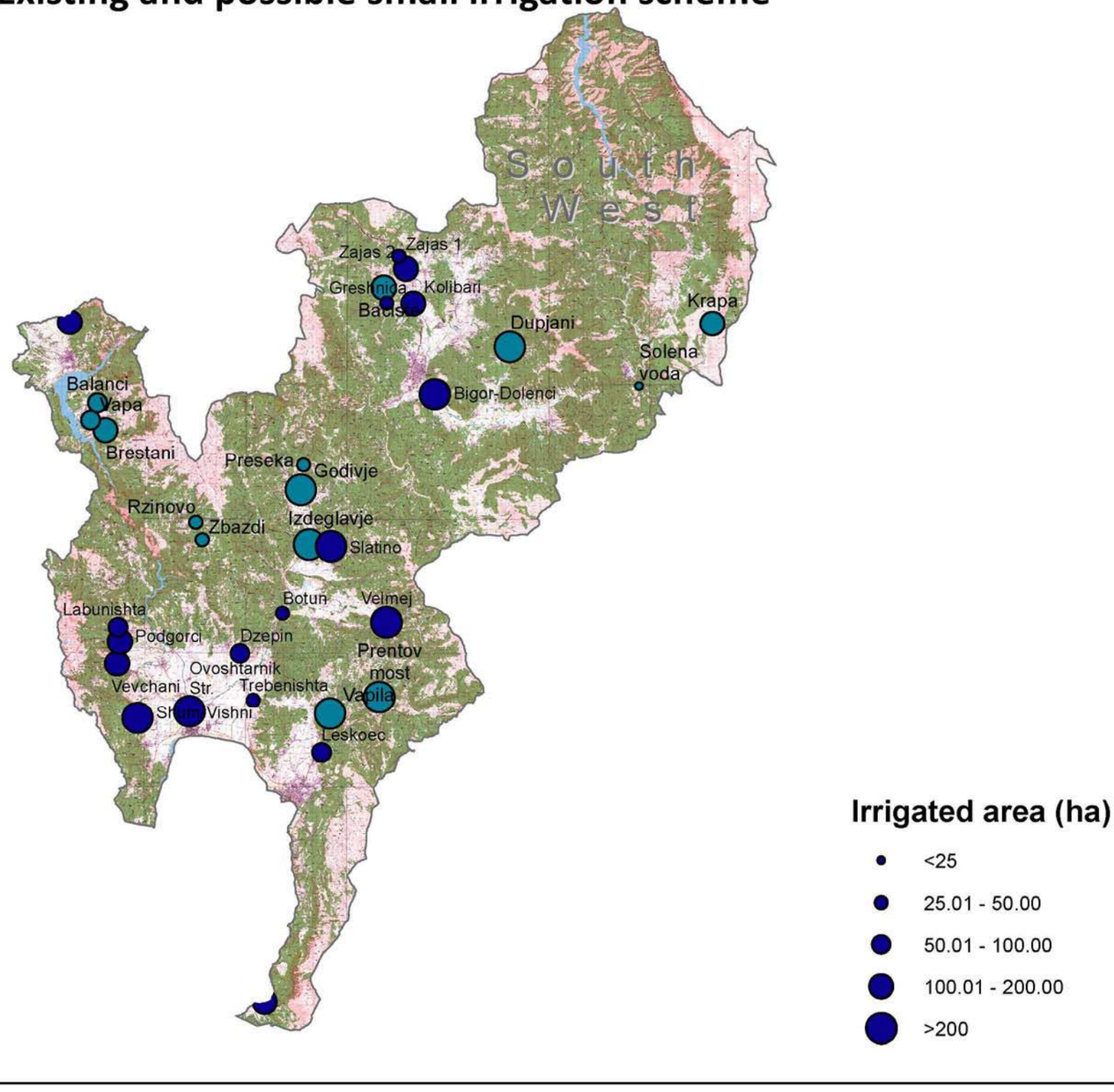
Existing and possible small irrigation scheme



SOUTH WEST REGION

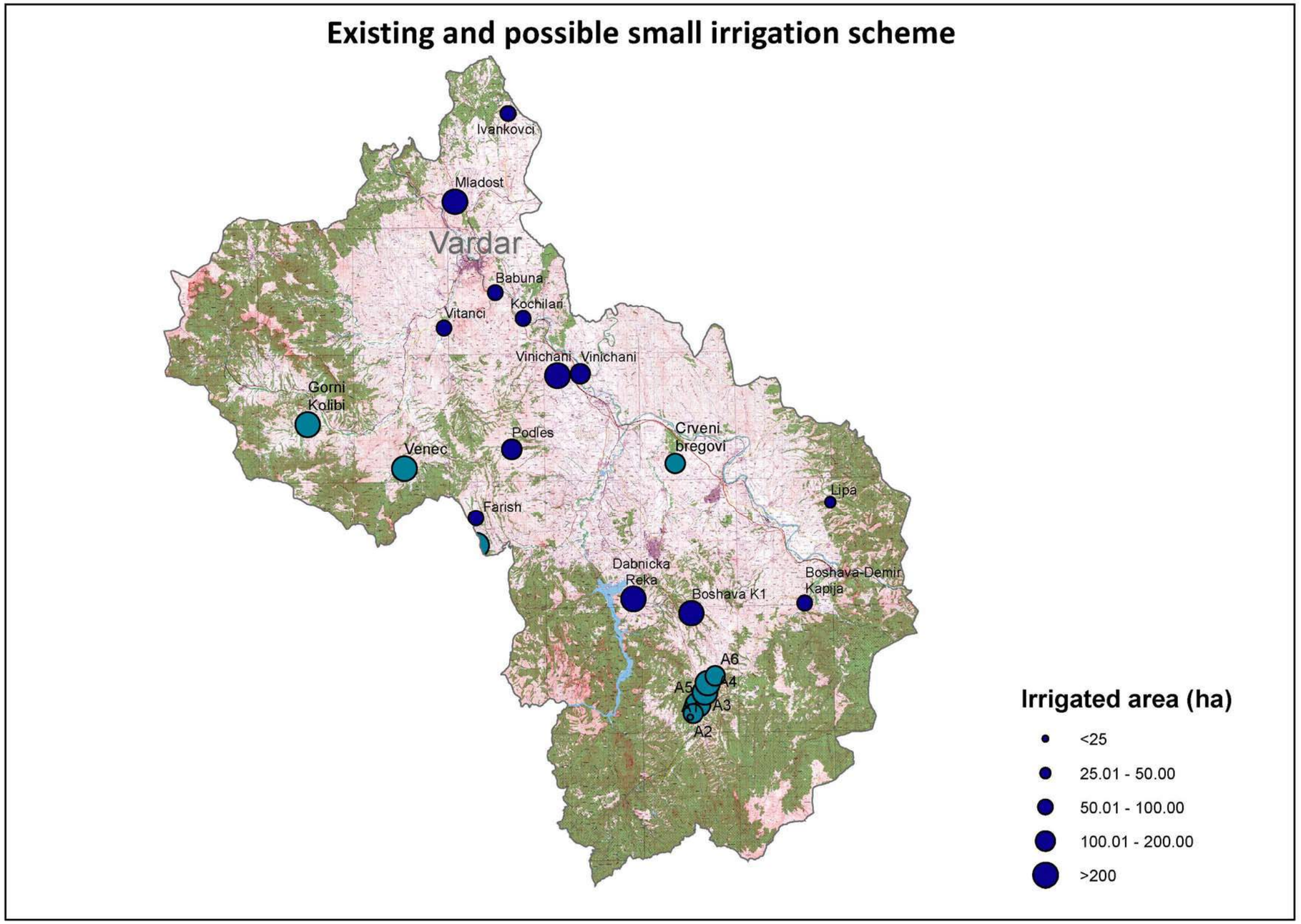
Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha	Sum Criteria
149	Other Sources	New	Vevchani	local river	7465708	4566304	180	Vevchani	South-West	Vevchani	Crn Drim	838,3	695,3	0,54	Fine to coarse loamy	S, SE, SW	7%	<5	>30%	25000-35000	2,19	7,7
150	ToR	Existing	HMS Bigor Dolenci-Chelopeci	Treska	7498689	4594176	510	Kichevo	South-West	Kichevo	Crn Drim	879,2	654,4	0,52	Coarse loamy	S, SE, SW	2%	<5	>30%	25000-35000	2,08	7,7
151	ToR	Existing	Sub system for irrigation Leskoec	local river	7486890	4557083	100	Ohrid	South-West	Ohrid	Crn Drim	846,5	686,3	0,48	Coarse loamy	S, SE, SW	3%	<5	>30%	25000-35000	2,43	7,7
152	Study for priority dams, 1980	New	Dam Vapila	Vapilica	7487826	4561145	243		South-West	Ohrid	Crn Drim	842,4	690,5	0,48	Fine to coarse loamy	S, SE, SW	11%	<5	>30%	25000-35000	2,43	7,5
153	ToR	Existing	Sub system for irrigation from St.Naum Spring, Ljubanishta	Ohrid Lake	7481056	4531261	142	Ohrid	South-West	Ohrid	Crn Drim	857,5	675,7	0,48	Coarse loamy	NW, NE	3%	20-30	>30%	25000-35000	2,43	7,4
154	ToR	Existing	Greshnica	Zajashka River	7493708	4603685	50	Kichevo	South-West	Kichevo	Crn Drim	859,9	673,9	0,52	Fine to coarse loamy	NW, NE	5%	<5	>30%	25000-35000	1,56	7,2
155	ToR	Existing	Zajas 1	Zajashka River	7494942	4608489	40	Kichevo	South-West	Kichevo	Crn Drim	849,2	685,4	0,52	Coarse loamy	E,W	5%	<5	>30%	25000-35000	1,56	7,2
156	ToR	Existing	Zajas 2	Zajashka River	7495657	4607234	140	Kichevo	South-West	Kichevo	Crn Drim	854,1	679,5	0,52	Gravel loamy to loamy skeletal	S, SE, SW	9%	<5	>30%	25000-35000	1,56	7,0
157	Other Sources	Existing	Kolibari	Zajaska reka	7496424	4603631	150	Kichevo	South-West	Kichevo	Crn Drim	867,5	665,7	0,52	Coarse loamy	S, SE, SW	4%	<5	>30%	25000-35000	1,02	6,8
158	Study for priority dams, 1980	New	Dam Dupjani	Rabetinska	7506432	4599120	206		South-West	Vraneshtica	Crn Drim	869,6	663,9	0,52	Fine to coarse loamy	S, SE, SW	10%	5-10	>30%	25000-35000	1,47	6,8
159	Other Sources	Existing	Ovoshtarnik Str.	Crn Drim	7473196	4561379	250	Struga	South-West	Struga	Crn Drim	858,7	674,6	0,54	Coarse loamy	S, SE, SW	1%	<5	>30%	<25000	1,11	6,7
160	ToR	Existing	Sub system for irrigation from spring Dzepin	local river	7478471	4567359	100	Struga	South-West	Struga	Crn Drim	854,1	679,1	0,54	Coarse loamy	S, SE, SW	1%	<5	>30%	<25000	1,11	6,7
161	Study for priority dams, 1980	New	Dam Baciste	Baciska	7493374	4605273	134		South-West	Zajas	Crn Drim	844,0	688,7	0,52	Gravel l. to loamy skeletal	S, SE, SW	30%	<5	>30%	25000-35000	1,56	6,6
162	Study for priority dams, 1980	New	Dam Prentov most	Mokreska	7492895	4562874	580		South-West	Ohrid	Crn Drim	795,8	735,2	0,48	Coarse loamy	S, SE, SW	37%	5-10	>30%	25000-35000	2,43	6,6
163	Other Sources	New	Labunishta	local river	7465832	4570063	75	Struga	South-West	Struga	Crn Drim	844,7	689,3	0,54	Coarse loamy	E,W	8%	<5	>30%	<25000	1,11	6,6
164	Other Sources	New	Podgorci	local river	7466019	4568602	180	Struga	South-West	Struga/Vevchani	Crn Drim	834,0	699,7	0,54	Coarse loamy	E,W	7%	<5	>30%	<25000	1,41	6,5
165	Other Sources	Existing	Shum-Vishni	Belichka	7467883	4560683	305	Struga	South-West	Struga	Crn Drim	850,7	682,7	0,54	Gravel loamy to loamy skeletal	S, SE, SW	3%	<5	>30%	<25000	1,11	6,5
166	Other Sources	Existing	Trebenishta	local river	7479875	4562534	50	Debarca	South-West	Debarca	Crn Drim	855,0	678,1	0,48	Fine to coarse loamy	E,W	2%	<5	>30%	25000-35000	0,88	6,4
167	ToR	Existing	Sub system for irrigation from dam Slatino	dam	7487929	4578444	250	Debarca	South-West	Debarca	Crn Drim	834,4	698,6	0,48	Coarse loamy	S, SE, SW	2%	<5	>30%	25000-35000	0,88	6,4
168	Study for priority dams, 1980	New	Dam Krapa	Krapska	7527439	4601517	144		South-West	Makedonski Brod	Prilepsko Pole	781,1	751,4	0,42	Fine to coarse loamy	S, SE, SW	15%	5-10	>30%	35000-45000	1,36	6,3
169	Other Sources	Existing	Banjishte	Banjishka Reka	7460870	4601680	150	Debar	South-West	Debar	Crn Drim	860,7	671,5	0,59	Coarse loamy	S, SE, SW	9%	<5	>30%	<25000	0,95	6,3
170	Other Sources	Existing	Botun	Sateska	7482907	4571492	50	Debarca	South-West	Debarca	Crn Drim	843,7	691,0	0,48	Coarse loamy	S, SE, SW	17%	<5	>30%	25000-35000	0,88	6,2
171	Study for priority dams, 1980	New	Dam Preseka	No name creek	7485053	4586832	36		South-West	Debarca	Crn Drim	807,3	725,9	0,48	Fine to coarse loamy	S, SE, SW	7%	10-20	>30%	25000-35000	0,88	6,2
172	Study for priority dams, 1980	New	Dam Izdeglavje	Sateska	7485629	4578636	704		South-West	Debarca	Crn Drim	832,5	700,5	0,48	Coarse loamy	S, SE, SW	9%	<5	>30%	25000-35000	0,88	6,2
173	ToR	Existing	Velmej	spring	7493626	4570611	275	Debarca	South-West	Debarca	Crn Drim	826,0	706,7	0,48	Fine to coarse loamy	S, SE, SW	4%	5-10	>30%	25000-35000	0,88	6,2
174	Study for priority dams, 1980	New	Dam Godivje	Godivska	7484792	4584269	300		South-West	Debarca	Crn Drim	814,7	718,5	0,48	Fine to coarse loamy	S, SE, SW	12%	5-10	>30%	25000-35000	0,88	6,0
175	Study for priority dams, 1980	New	Dam Rzinovo	Oreska	7473878	4580943	50		South-West	Struga	Crn Drim	714,4	817,2	0,57	Coarse loamy	S, SE, SW	17%	<5	>30%	<25000	1,11	5,8
176	Study for priority dams, 1980	New	Dam Vapa	Vapska	7463001	4591557	77		South-West	Centar Zupa	Crn Drim	857,8	674,6	0,59	Coarse loamy	S, SE, SW	15%	<5	>30%	<25000	0,49	5,7
177	Study for priority dams, 1980	New	Dam Zbazdi	Slivnicka	7474524	4579137	50		South-West	Struga	Crn Drim	789,3	740,7	0,54	Coarse loamy	E,W	29%	5-10	>30%	<25000	1,11	5,7
178	Study for priority dams, 1980	New	Dam Balanci	Papradnicka	7463709	4593322	73		South-West	Centar Zupa	Crn Drim	845,2	686,8	0,59	Coarse loamy	S, SE, SW	22%	<5	>30%	<25000	0,49	5,6
179	Study for priority dams, 1980	New	Dam Brestani	Brestanska	7464538	4590483	129		South-West	Centar Zupa	Crn Drim	858,7	675,5	0,59	Coarse loamy	N	38%	<5	>30%	<25000	0,49	5,2

Existing and possible small irrigation scheme



VARDAR REGION

Number	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha	**Sum Criteria**
180	Study for priority dams, 1980	New	Dam Crveni bregovi	Suvodolica	7587313	4597415	130		Vardar	Kavadarci	Tikvesh	964.6	570.5	0.51	Coarse loamy	NW, NE	8%	<5	20-25%	>45000	2.27	7.3
181	Cons.Avail.Docum.	Existing	Dabnicka Reka	Dabnichka	7582730	4582636	300	Kavadarci	Vardar	Kavadarci	Tikvesh	953.2	581.6	0.51	Fine to coarse loamy	NW, NE	10%	<5	20-25%	>45000	2.45	7.1
182	Cons.Avail.Docum.	Existing	Farish	small dam	7565524	4591409	78	Chashka	Vardar	Kavadarci	Tikvesh	916.5	617.2	0.52	Coarse loamy	S, SE, SW	8%	10-20	20-25%	>45000	2.42	7.0
183	Cons.Avail.Docum.	Existing	Demir Kapija	Boshava	7589085	4581059	300	Kavadarci	Vardar	Kavadarci	Tikvesh	936.9	597.2	0.51	Coarse loamy	E,W	23%	<5	20-25%	>45000	2.45	6.9
184	Study for priority dams, 1980	New	Dam Nikodin	Glogovicka	7565551	4588443	300		Vardar	Kavadarci	Tikvesh	923.2	611.2	0.52	Coarse loamy	S, SE, SW	13%	10-20	20-25%	>45000	2.37	6.9
185	Study for priority dams, 1980	New	Dam A2	Vitacevski potok	7589295	4570058	104		Vardar	Kavadarci	Tikvesh	810.6	722.3	0.50	Coarse loamy	NW, NE	10%	<5	20-25%	>45000	2.45	6.3
186	Study for priority dams, 1980	New	Dam A1	Vitacevski potok	7588957	4569633	14		Vardar	Kavadarci	Tikvesh	807.0	726.2	0.51	Coarse loamy	NW, NE	6%	<5	20-25%	>45000	2.45	6.3
187	Cons.Avail.Docum.	Existing	Vinichani	Vardar	7576924	4607221	150	Gradsko	Vardar	Gradsko	Tikvesh	982.2	552.4	0.51	Coarse loamy	S, SE, SW	3%	<5	20-25%	25000-35000	1.14	6.3
188	Study for priority dams, 1980	New	Dam A4	Vitacevski potok	7590545	4572379	565		Vardar	Kavadarci	Tikvesh	820.9	712.4	0.52	Coarse loamy	S, SE, SW	13%	<5	20-25%	>45000	2.45	6.3
189	Study for priority dams, 1980	New	Dam A5	Vitacevski potok	7590860	4573390	293		Vardar	Kavadarci	Tikvesh	824.7	708.1	0.51	Coarse loamy	NW, NE	8%	5-10	20-25%	>45000	2.45	6.3
190	Cons.Avail.Docum.	Existing	Kochilari	Vardar	7570691	4613301	80	Gradsko	Vardar	Gradsko	Tikvesh	976.9	557.7	0.51	Coarse loamy	S, SE, SW	6%	5-10	20-25%	25000-35000	1.14	6.3
191	Cons.Avail.Docum.	Existing	Mladost	small dam	7563189	4626064	1200	Veles	Vardar	Veles	Lisiche	947.9	586.3	0.47	Gravel to coarse loamy	S, SE, SW	8%	5-10	20-25%	35000-45000	1.42	6.2
192	Cons.Avail.Docum.	Existing	Lipa	small dam	7604309	4593227	43	Negotino	Vardar	Demir Kapija	Tikvesh	970.0	565.1	0.51	Fine to coarse loamy	NW, NE	12%	5-10	20-25%	>45000	1.42	6.2
193	Study for priority dams, 1980	New	Dam A3	Vitacevski potok	7589767	4571013	650		Vardar	Kavadarci	Tikvesh	817.7	715.3	0.46	Coarse loamy	E,W	16%	<5	20-25%	>45000	2.45	6.2
194	Cons.Avail.Docum.	New	Dam Vinichani	dam on Svekjanska River	7574399	4607020	376	Gradsko	Vardar	Gradsko	Tikvesh	968.4	565.7	0.51	Coarse loamy	S, SE, SW	11%	<5	20-25%	25000-35000	1.14	6.1
195	Study for priority dams, 1980	New	Dam A6	Vitacevski potok	7591689	4574204	176		Vardar	Kavadarci	Tikvesh	829.6	703.3	0.51	Coarse loamy	NW, NE	12%	5-10	20-25%	>45000	2.45	6.0
196	Cons.Avail.Docum.	Existing	Babuna	Babuna	7567614	4616144	100	Veles	Vardar	Veles	Lisiche	968.4	566.1	0.51	Coarse loamy	NW, NE	11%	<5	20-25%	35000-45000	1.42	6.0
197	Cons.Avail.Docum.	Existing	Podles	small dam	7569428	4598934	150	Gradsko	Vardar	Gradsko	Tikvesh	935.7	598.1	0.52	Coarse loamy	S, SE, SW	15%	5-10	20-25%	25000-35000	1.18	5.9
198	Cons.Avail.Docum.	Existing	Vitanci	Babuna	7562035	4612245	98	Veles	Vardar	Chashka	Lisiche	955.1	578.6	0.45	Coarse loamy	E,W	13%	5-10	20-25%	25000-35000	1.09	5.9
199	Study for priority dams, 1980	New	Dam Gorni Kolibi	Brezica	7547094	4601628	510		Vardar	Chashka	Lisice	937.8	596.9	0.45	Fine to coarse loamy	NW, NE	11%	5-10	20-25%	25000-35000	1.08	5.9
200	Study for priority dams, 1980	New	Dam Venec	Izvorcica	7557673	4596849	870		Vardar	Chashka	Lisice	932.8	601.1	0.45	Coarse loamy	S, SE, SW	12%	<5	20-25%	25000-35000	1.08	5.8
201	Cons.Avail.Docum.	New	Ivankovci	local river	7569011	4635647	100	Veles	Vardar	Veles	Lisiche	907.6	627.0	0.47	Gravel to coarse loamy	E,W	13%	5-10	20-25%	35000-45000	1.42	5.7


Existing and possible small irrigation scheme
Ivankovci
Mladost
Vardar
Babuna
Kochilari
Vitanci
Vinichani
Vinichani
Gorni Kolibi
Podles
Venec
Crveni bregovi
Lipa
Farish
Dabnicka Reka
Boshava K1
Boshava-Demir Kapija
A6
A5
A4
A3
A2
Irrigated area (ha)
<25
25.01 - 50.00
50.01 - 100.00
100.01 - 200.00
>200

ANNEX 2: TABLE OF 85 POTENTIAL LOCATIONS

Application of the agreed criteria to the pool of 201 potential sites to obtain approximately 80 possible locations, per planning region:

EAST REGION

Possible Locati	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha
	Study for priority dams, 1980	New	Dam Gjugjanci	Madzarica	7579202	4646077	308		East	Sveti Nikole	Bregalnica	925.7	608.0	0.52	Gravel to coarse loamy	S, SE, SW	12%	5-10	<20%	<25000	0.41
1	ToR	Existing	Dam Mavrovica, HMS Bregalnica	Orlica	7581934	4640905	250	Sveti Nikole	East	Sveti Nikole	Bregalnica	939.0	595.2	0.52	Gravel to coarse loamy	S, SE, SW	7%	<5	<20%	<25000	0.41
2	Cons.Avail.Docum.	Existing	Sandanski (Delchevo)	Bregalnica	7650074	4644397	250	Delchevo	East	Delchevo	Bregalnica	874.9	658.5	0.48	Coarse loamy	E,W	5%	<5	<20%	25000-35000	0.89
	Study for priority dams, 1980	New	Dam Vranjak	Vranjak	7571005	4642706	250		East	Sveti Nikole	Bregalnica	927.8	606.8	0.52	Gravel to coarse loamy	S, SE, SW	12%	5-10	<20%	<25000	0.41
3	Cons.Avail.Docum.	Existing	Beloshnica-Zletovo	Zletovska	7600278	4640730	200	Probishtip	East	Probishtip	Zletovica	938.3	595.9	0.56	Coarse loamy	S, SE, SW	3%	5-10	<20%	<25000	0.66
	Study for priority dams, 1980	New	Dam Bela Voda	Gabrovska	7650624	4651632	200		East	Delchevo	Bregalnica	861.6	672.0	0.48	Fine to coarse loamy	S, SE, SW	17%	<5	<20%	25000-35000	0.89
	Cons.Avail.Docum.	Existing	Loshana	small dam	7647551	4638311	196	Delchevo	East	Delchevo	Bregalnica	857.0	676.1	0.48	Coarse loamy	E,W	8%	10-20	<20%	25000-35000	0.89
4	ToR	Existing	Dam Pishica, HMS Bregalnica	Pishichka River	7600279	4637623	170	Probishtip	East	Probishtip	Zletovica	931.7	602.2	0.56	Gravel to coarse loamy	NW, NE	8%	5-10	<20%	<25000	0.66
	Study for priority dams, 1980	New	Dam Repnica	Repnicka	7654011	4641110	165		East	Delchevo	Bregalnica	852.5	680.3	0.48	Coarse loamy	S, SE, SW	15%	5-10	<20%	25000-35000	0.89
	Study for priority dams, 1980	New	Dam Crnik	No name creek	7656090	4631815	135		East	Pehchevo	Bregalnica	827.7	704.8	0.48	Coarse loamy	S, SE, SW	15%	5-10	<20%	35000-45000	0.42
	Study for priority dams, 1980	New	Dam Dobrava	Susicka	7637333	4635524	125		East	Vinica	Bregalnica	879.5	653.6	0.56	Fine to coarse loamy	NW, NE	15%	<5	<20%	35000-45000	0.91
	Study for priority dams, 1980	New	Dam Stara vodenica	Kozjacka	7608158	4628539	124		East	Karbinci	Bregalnica	927.5	606.4	0.52	Coarse loamy	NW, NE	10%	<5	<20%	<25000	0.48
	Study for priority dams, 1980	New	Dam Ciflik	Negreska	7655458	4626442	121		East	Pehchevo	Bregalnica	807.8	724.6	0.48	Coarse loamy	S, SE, SW	11%	<5	<20%	35000-45000	0.42
	Study for priority dams, 1980	New	Dam Grncarka	No name creek	7627477	4637132	110		East	Vinica	Bregalnica	891.9	642.3	0.56	Fine to coarse loamy	NW, NE	17%	<5	<20%	35000-45000	0.91
	Cons.Avail.Docum.	New	Kosevichko Pole	dam on Kosevichka	7634193	4657954	100	Makedonska Kamenica	East	Makedonska Kamenica	Bregalnica	867.9	666.4	0.48	Gravel loamy to loamy skeletal	E,W	25%	<5	<20%	25000-35000	0.82
	Study for priority dams, 1980	New	Dam Vladimirovo 1	Selska	7648899	4618219	100		East	Berovo	Berovo	812.1	721.1	0.48	Coarse loamy	E,W	19%	<5	<20%	35000-45000	0.54
	Study for priority dams, 1980	New	Dam Kemerot	Otinja	7600880	4621961	100		East	Shtip	Bregalnica	938.0	596.5	0.52	Coarse loamy	N	14%	<5	<20%	<25000	0.80
5	Cons.Avail.Docum.	Existing	Crn Dol Pehchevo	Crn Dol	7662150	4622284	80	Pehchevo	East	Pehchevo	Bregalnica	781.6	751.8	0.48	Coarse loamy	S, SE, SW	16%	<5	<20%	35000-45000	0.42
6	Cons.Avail.Docum.	Existing	Zletovo	Zletovska	7603636	4650910	80	Probishtip	East	Probishtip	Zletovica	914.0	619.7	0.56	Gravel to coarse loamy	S, SE, SW	7%	<5	<20%	<25000	0.66
	Cons.Avail.Docum.	New	Zrnovci	Zrnovska River	7620716	4634976	60	Zrnovci	East	Zrnovci	Bregalnica	928.1	606.4	0.56	Coarse loamy	N	11%	<5	<20%	<25000	1.08
	Study for priority dams, 1980	New	Dam Plesinci	Plesinski creek	7594085	4652091	60		East	Probishtip	Bregalnica	878.5	655.3	0.56	Gravel to coarse loamy	S, SE, SW	17%	<5	<20%	<25000	0.66
	Cons.Avail.Docum.	Existing	Delchevo-Grashtica	small dam	7649282	4643740	46	Delchevo	East	Delchevo	Bregalnica	867.3	665.6	0.48	Coarse loamy	NW, NE	16%	<5	<20%	25000-35000	0.89
	Cons.Avail.Docum.	Existing	Blatec	small dam	7632960	4634207	39	Vinica	East	Vinica	Bregalnica	881.3	651.5	0.56	Fine to coarse loamy	S, SE, SW	18%	<5	<20%	35000-45000	0.91

Belongs to more than one municipality
Irrigated area too small
Only for Water Supply
New dam, high investment

NORTH-EAST REGION

Possible Locati	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha
	Study for priority dams, 1980	New	Dam Recica	Tabanovacka	7559435	4672285	1116		North-East	Kumanovo	Kum.-Lipkovsko pole	927.7	606.1	0.49	Gravel to coarse loamy	S, SE, SW	5%	5-10	>30%	<25000	0.59
	ToR	New	Dam Gorno Gradishte	dam	7588855	4656141	535	Kratovo	North-East	Kratovo	Zletovica	920.3	613.9	0.43	Gravel to coarse loamy	NW, NE	12%	10-20	>30%	25000-35000	0.50
	ToR	New	Dam Markovci	dam	7580129	4657253	354	Kumanovo	North-East	Kratovo/Kumanovo	Zletovica	927.2	606.9	0.43	Coarse loamy	NW, NE	11%	5-10	>30%	25000-35000	0.52
	Study for priority dams, 1980	New	Dam Zivusa	Zivuska	7574655	4665436	302		North-East	Kumanovo	Kum.-Lipkovsko pole	940.4	593.9	0.43	Coarse loamy	S, SE, SW	10%	<5	>30%	<25000	0.59
7	Cons.Avail.Docum.	Existing	Studena Bara- Vakuf	Pchinja	7561917	4654992	290	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	955.6	578.9	0.48	Coarse loamy	S, SE, SW	1%	5-10	>30%	<25000	0.59
	Study for priority dams, 1980	New	Dam Vragoturce	Bistrica	7571348	4680121	284		North-East	Staro Nagorichane	Kum.-Lipkovsko pole	921.7	611.7	0.47	Coarse loamy	S, SE, SW	12%	5-10	>30%	<25000	0.38
8	ToR	Existing	HMS Dovezance-Jacince-Klechovce	Kriva Reka	7575534	4664452	250	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	944.9	589.5	0.44	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0.59
9	Cons.Avail.Docum.	Existing	Slavishko Pole	Kriva Reka	7599579	4670511	250	Rankovce	North-East	Rankovce	Kum.-Lipkovsko pole	907.9	626.0	0.43	Gravel to coarse loamy	S, SE, SW	3%	<5	>30%	<25000	0.43
10	Cons.Avail.Docum.	Existing	Dragomanci	Pchinja	7570529	4676710	136	Staro Nagorichane	North-East	Staro Nagorichane	Kum.-Lipkovsko pole	936.8	597.6	0.47	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0.38
11	ToR	Existing	HMS Shupli Kamen-Zubovce	Pchinja	7569133	4663573	122	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	948.5	585.9	0.48	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0.59
12	Cons.Avail.Docum.	Existing	Mozdivnjak	local river	7605100	4667979	110	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	870.7	663.1	0.43	Fine to coarse loamy	NW, NE	16%	5-10	>30%	35000-45000	0.93
13	Cons.Avail.Docum.	New	Konopnica	local river	7607670	4670693	75	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	869.8	664.2	0.43	Fine to coarse loamy	NW, NE	12%	<5	>30%	35000-45000	0.93
	ToR	New	Dam Povishnica	dam	7593925	4657715	68	Kratovo	North-East	Kratovo	Zletovica	880.7	653.5	0.43	Coarse loamy	NW, NE	17%	<5	>30%	25000-35000	0.50
	Cons.Avail.Docum.	Existing	Rechica	local river	7558288	4671064	60	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	932.3	601.9	0.49	Gravel to coarse loamy	E,W	2%	<5	>30%	<25000	0.59
	Study for priority dams, 1980	New	Dam Milutinci	Milutinska	7593489	4674891	50		North-East	Rankovce	Kum.-Lipkovsko pole	892.8	640.2	0.43	Coarse loamy	S, SE, SW	7%	<5	>30%	<25000	0.43
	Cons.Avail.Docum.	Existing	Otoshnica	small dam	7589268	4674520	43	Rankovce	North-East	Rankovce	Kum.-Lipkovsko pole	868.8	664.6	0.43	Coarse loamy	S, SE, SW	11%	<5	>30%	<25000	0.43
	ToR	Existing	Kalin Kamen	spring	7619312	4670577	20	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	637.2	893.8	0.43	Coarse loamy	NW, NE	16%	5-10	>30%	35000-45000	0.93
	ToR	Existing	Vlashki Kolibi	spring	7617833	4671127	20	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	659.6	872.2	0.43	Coarse loamy	NW, NE	21%	5-10	>30%	35000-45000	0.93

Belongs to more than one municipality
Irrigated area too big
Irrigated area too small
New dam, high investment

PELAGONIJA REGION

Possible Locatio	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the area	Distance from mun.centar	Unemployed	Income per ha	Farmers per ha
	Study for priority dams, 1980	New	Dam Bukri	Crna	7543412	4533951	1886		Pelagonija	Bitola	Bitolsko Pole	881.8	651.7	0.26	Coarse loamy	S, SE, SW	5%	<5	20-25%	<25000	0.49
	Study for priority dams, 1980	New	Dam Rastojica	Zaba	7516292	4576312	721		Pelagonija	Demir Hisar	Bitolsko Pole	864.0	669.0	0.50	Coarse loamy	S, SE, SW	12%	<5	20-25%	35000-45000	0.94
	Study for priority dams, 1980	New	Dam Cerovo	Boiska	7509411	4564250	598		Pelagonija	Demir Hisar	Bitolsko Pole	847.1	686.1	0.50	Coarse loamy	NW, NE	21%	5-10	20-25%	35000-45000	0.94
14	Study for priority dams, 1980	New	Dam Podmol	Pisokolska	7548182	4562514	500		Pelagonija	Prilep	Prilepsko Pole	867.3	665.8	0.50	Coarse loamy	S, SE, SW	5%	5-10	20-25%	>45000	1.69
	Study for priority dams, 1980	New	Dam Pesterica	Oreovica	7551467	4582776	500		Pelagonija	Prilep	Prilepsko Pole	831.7	700.8	0.50	Fine to coarse loamy	NW, NE	13%	5-10	20-25%	>45000	1.69
15	Cons.Avail.Docum.	Existing	Suvodolsko/REK Ezerce	small dam	7546003	4547126	468	Novaci	Pelagonija	Novaci	Bitolsko Pole	882.4	651.3	0.50	Coarse loamy	S, SE, SW	1%	<5	20-25%	<25000	0.39
	Study for priority dams, 1980	New	Dam Obednik	Obednicka	7512037	4556892	368		Pelagonija	Demir Hisar	Bitolsko Pole	862.1	671.7	0.50	Coarse loamy	NW, NE	5%	<5	20-25%	35000-45000	0.94
16	Cons.Avail.Docum.	New	Gabalavci	Strezevo dam	7517029	4555714	300	Bitola	Pelagonija	Bitola	Bitolsko Pole	874.3	659.3	0.50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	<25000	0.67
	Cons.Avail.Docum.	New	Sekirani	Strezevo dam	7517071	4555678	300	Bitola	Pelagonija	Bitola	Bitolsko Pole	878.1	655.6	0.50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	<25000	0.67
17	ToR	Existing	Small Irr.scheme Desovo, dam Desovo 1	Suvodolichka	7543046	4593010	280	Dolneni	Pelagonija	Dolneni	Prilepsko pole	859.0	674.3	0.50	Coarse loamy	S, SE, SW	4%	5-10	20-25%	35000-45000	0.45
	Study for priority dams, 1980	New	Dam Bolno	Bolska	7497175	4553144	270		Pelagonija	Resen	Crn Drim	807.1	725.9	0.58	Coarse loamy	S, SE, SW	6%	<5	20-25%	>45000	1.37
18	Cons.Avail.Docum.	Existing	Dihovo	Dihovska	7522840	4543023	270	Bitola	Pelagonija	Bitola	Bitolsko Pole	841.3	692.4	0.50	Fine to coarse loamy	NW, NE	8%	<5	20-25%	<25000	0.67
19	Cons.Avail.Docum.	Existing	Debreshte	Crna	7529810	4587799	251	Dolneni	Pelagonija	Dolneni	Prilepsko pole	878.1	655.5	0.50	Gravel to coarse loamy	S, SE, SW	1%	5-10	20-25%	35000-45000	0.45
20	ToR	Existing	HMS Topolchani	Crna	7534818	4565321	250	Mogila	Pelagonija	Prilep	Prilepsko pole	882.2	651.4	0.50	Coarse loamy	S, SE, SW	2%	<5	20-25%	>45000	1.57
21	Cons.Avail.Docum.	Existing	Crna (upstream)	Crna	7510586	4572131	250	Demir Hisar	Pelagonija	Demir Hisar	Bitolsko Pole	866.9	666.6	0.50	Coarse loamy	S, SE, SW	3%	<5	20-25%	35000-45000	0.94
22	ToR	Existing	Small Irr.scheme Brailovo, dam Brailovo	Suvodolichka	7539642	4593508	240	Dolneni	Pelagonija	Dolneni	Prilepsko pole	862.7	670.9	0.50	Coarse loamy	S, SE, SW	6%	5-10	20-25%	35000-45000	0.45
	Cons.Avail.Docum.	New	Selce	dam on Selechka River	7522726	4585251	227	Krushevo	Pelagonija	Krushevo	Prilepsko Pole	861.6	672.2	0.50	Coarse loamy	S, SE, SW	8%	<5	20-25%	>45000	0.71
23	Cons.Avail.Docum.	Existing	Krushevo	Selichka	7524049	4579444	220	Krushevo	Pelagonija	Krushevo	Prilepsko pole	867.2	666.9	0.50	Fine to coarse loamy	E,W	4%	<5	20-25%	>45000	0.71
24	Cons.Avail.Docum.	Existing	Bistrica	local river	7530604	4537383	200	Bitola	Pelagonija	Bitola	Bitolsko Pole	882.3	651.5	0.50	Coarse loamy	S, SE, SW	2%	<5	20-25%	<25000	0.67
25	Cons.Avail.Docum.	New	Lera-Kazhani	Strezevo dam	7514735	4554565	200	Bitola	Pelagonija	Bitola	Bitolsko Pole	839.7	693.5	0.53	Fine loamy to coarse loamy	N	4%	<5	20-25%	<25000	0.67
26	ToR	Existing	Intake on Kranska River (Krani)	Kranska	7509419	4532678	153	Resen	Pelagonija	Resen	Crn Drim	814.0	718.1	0.58	Fine to coarse loamy	S, SE, SW	7%	10-20	20-25%	>45000	1.37
27	Cons.Avail.Docum.	Existing	Graeshnica	local river	7529634	4528496	150	Bitola	Pelagonija	Bitola	Bitolsko Pole	870.3	663.9	0.50	Fine to coarse loamy	E,W	7%	5-10	20-25%	<25000	0.67
	Study for priority dams, 1980	New	Dam Kociste	Zaba	7515089	4579785	130		Pelagonija	Demir Hisar	Bitolsko Pole	846.9	687.2	0.50	Coarse loamy	S, SE, SW	19%	5-10	20-25%	35000-45000	0.94
	Study for priority dams, 1980	New	Dam Vodenica	Leva	7501219	4557876	125		Pelagonija	Resen	Crn Drim	792.2	740.3	0.58	Coarse loamy	S, SE, SW	28%	5-10	20-25%	>45000	1.37
28	Cons.Avail.Docum.	Existing	Buchin	Crna	7526559	4570534	120	Krushevo	Pelagonija	Krushevo	Prilepsko pole	879.1	654.5	0.50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	>45000	0.71
	Cons.Avail.Docum.	Existing	Borino 1, 2	small dam	7524142	4588470	120	Krushevo	Pelagonija	Krushevo/Dolneni	Prilepsko pole	873.2	660.5	0.50	Fine to coarse loamy	NW, NE	2%	<5	20-25%	>45000	0.63
29	Cons.Avail.Docum.	Existing	Krushevsko Ezero	small dam	7520810	4581800	106	Krushevo	Pelagonija	Krushevo	Prilepsko pole	735.4	797.0	0.50	Coarse loamy	S, SE, SW	20%	<5	20-25%	>45000	0.71
	Study for priority dams, 1980	New	Dam Brajcino	Brajcinska	7517336	4530454	100		Pelagonija	Resen	Crn Drim	777.9	753.8	0.58	Coarse loamy	NW, NE	19%	10-20	20-25%	>45000	1.37
30	ToR	Existing	Small Dam Makazi	dam	7506002	4546265	95	Resen	Pelagonija	Resen	Crn Drim	807.1	724.9	0.58	Gravel loamy to loamy skeletal	NW, NE	8%	<5	20-25%	>45000	1.30
31	ToR	Existing	Intake on Brajchinska River (Ljubojno)	Brajchinska	7511967	4527999	84	Resen	Pelagonija	Resen	Crn Drim	816.2	716.2	0.58	Fine to coarse loamy	E,W	4%	10-20	20-25%	>45000	1.37
	Study for priority dams, 1980	New	Dam Dabnica	Dabnicka	7547413	4581862	80		Pelagonija	Prilep	Prilepsko Pole	854.8	677.9	0.50	Fine to coarse loamy	S, SE, SW	7%	<5	20-25%	>45000	1.69
	Cons.Avail.Docum.	Existing	Kurbinovo	Kurbinovska	7506190	4537896	78	Resen	Pelagonija	Resen	Crn Drim	805.9	725.8	0.58	Gravel loamy to loamy skeletal	S, SE, SW	9%	10-20	20-25%	>45000	1.37
	Cons.Avail.Docum.	Existing	Velushka Reka	Velushka	7530163	4531802	75	Bitola	Pelagonija	Bitola	Bitolsko Pole	871.5	662.8	0.50	Fine to coarse loamy	E,W	6%	<5	20-25%	<25000	0.67
	Cons.Avail.Docum.	Existing	Baldovenci	small dam	7544301	4541683	52	Novaci	Pelagonija	Novaci	Bitolsko Pole	872.8	660.9	0.50	Coarse loamy	S, SE, SW	8%	<5	20-25%	<25000	0.39
	Study for priority dams, 1980	New	Krusevica	Krusevicka	7554337	4563462	50		Pelagonija	Prilep	Prilepsko Pole	841.9	691.9	0.0	Coarse loamy	S, SE, SW	12%	10-20	20-25%	>45000	1.69
	Cons.Avail.Docum.	Existing	Krushevica	small dam	7555480	4560644	47	Prilep	Pelagonija	Prilep	Prilepsko pole	862.2	670.8	0.00	Coarse loamy	E,W	7%	10-20	20-25%	>45000	1.69
	Cons.Avail.Docum.	Existing	Volkovo Prilep	small dam	7547632	4572597	42	Prilep	Pelagonija	Prilep	Prilepsko pole	852.8	680.7	0.50	Fine to coarse loamy	S, SE, SW	8%	<5	20-25%	>45000	1.69
	Cons.Avail.Docum.	Existing	Bratin Dol	small dam	7520865	4546863	41	Bitola	Pelagonija	Bitola	Bitolsko Pole	829.3	704.0	0.50	Fine to coarse loamy	S, SE, SW	11%	5-10	20-25%	<25000	0.67
	ToR	Existing	Small Irr.scheme Belovodica, dam Belovodica 2	dam	7558764	4577014	25	Prilep	Pelagonija	Prilep	Prilepsko pole	846.7	687.0	0.52	Coarse loamy	NW, NE	13%	10-20	20-25%	>45000	1.69

Belongs to more than one municipality
Irrigated area too big
Irrigated area too small
New dam, high investment
Second stage of Gabalavci

POLOG REGION

Possible Location	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the area	Distance from mun.centar	Unemployed	Income per ha	Farmers per ha
	Study for priority dams, 1980	New	Dam Blace	No name creek	7501579	4639325	661		Polog	Brvenica	Polog	899.5	633.9	0.50	Coarse loamy	E,W	9%	5-10	25-30%	<25000	0.95
32	Cons.Avail.Docum.	Existing	Vrapchishka reka	Vrapchishka	7493883	4632632	280	Vrapchishte	Polog	Vrapchishte	Polog	894.9	639.1	0.50	Fine to coarse loamy	E,W	2%	<5	25-30%	<25000	1.04
33	Cons.Avail.Docum.	Existing	Lakavica	Lakavica	7494010	4622948	161	Gostivar	Polog	Gostivar	Polog	894.1	640.4	0.49	Coarse loamy	E,W	5%	<5	25-30%	25000-35000	1.33
34	Cons.Avail.Docum.	Existing	Dzepchishte	local river	7500027	4653874	160	Tetovo	Polog	Tetovo	Polog	912.7	621.5	0.52	Fine to coarse loamy	S, SE, SW	3%	<5	25-30%	25000-35000	1.39
35	Cons.Avail.Docum.	Existing	Shkoza	Vardar	7489992	4627022	142	Gostivar	Polog	Gostivar	Polog	885.2	648.5	0.49	Coarse loamy	NW, NE	5%	<5	25-30%	25000-35000	1.33
	Cons.Avail.Docum.	New	Tearce	local river	7504779	4660367	140	Tearce	Polog	Tearce	Polog	906.3	627.8	0.52	Fine to coarse loamy	S, SE, SW	5%	<5	25-30%	<25000	1.55
36	Cons.Avail.Docum.	Existing	Banjichko Pole	Vardar	7490321	4627334	140	Gostivar	Polog	Gostivar	Polog	891.0	643.0	0.49	Coarse loamy	NW, NE	3%	<5	25-30%	25000-35000	1.33
37	ToR	Existing	Rechane	River Duf	7484968	4622540	120	Gostivar	Polog	Gostivar	Polog	848.6	685.0	0.49	Coarse loamy	NW, NE	12%	<5	25-30%	25000-35000	1.33
38	Cons.Avail.Docum.	Existing	Balin Dol	Lakavica	7494385	4626841	116	Gostivar	Polog	Gostivar	Polog	897.7	635.8	0.49	Coarse loamy	NW, NE	4%	<5	25-30%	25000-35000	1.33
39	Cons.Avail.Docum.	Existing	Rechica	local river	7495862	4649230	114	Tetovo	Polog	Tetovo	Polog	912.7	621.4	0.48	Fine to coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	1.39
40	Cons.Avail.Docum.	Existing	Neproshteno	local river	7502123	4655858	114	Tearce	Polog	Tearce	Polog	913.7	620.3	0.52	Fine to coarse loamy	S, SE, SW	3%	<5	25-30%	<25000	1.45
	Cons.Avail.Docum.	Existing	Nerashte	small dam	7510882	4663605	111	Jegunovce	Polog	Tearce/Jegunovce	Polog	884.3	648.4	0.52	Fine to coarse loamy	S, SE, SW	15%	<5	25-30%	<25000	1.36
	Study for priority dams, 1980	New	Dam Mirdita	No name creek	7489090	4625911	100		Polog	Gostivar	Polog	882.6	651.4	0.49	Coarse loamy	S, SE, SW	9%	<5	25-30%	25000-35000	1.33
	Study for priority dams, 1980	New	Dam Dobarca	Dobarce	7507690	4646189	90		Polog	Zhelino	Polog	890.0	644.3	0.44	Coarse loamy	S, SE, SW	11%	<5	25-30%	<25000	1.01

Belongs to more than one municipality
Irrigated area too big
Irrigated area too small
New dam, high investment

SKOPJE REGION

Possible Location	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the area	Distance from mun.centar	Unemployed	Income per ha	Farmers per ha
41	ToR	Existing	Small Irr.scheme Rashche-Vlae-Vrelo	Vardar	7521145.28	4654510.4	325	Saraj	Skopje	Saraj	Skopsko Pole	948.9	585.5	0.45	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	2.05
	Study for priority dams, 1980	New	Dam Markov manastir	Markova	7533796.66	4638812.8	203		Skopje	Studenichani	Skopsko pole	923.2	611.2	0.42	Coarse loamy	S, SE, SW	17%	5-10	25-30%	35000-45000	2.05
	Study for priority dams, 1980	New	Dam Bojane	Bojanska	7519184.82	4648745.1	188		Skopje	Saraj	Skopsko pole	927.8	606.5	0.44	Coarse loamy	S, SE, SW	12%	5-10	25-30%	25000-35000	2.05
	Study for priority dams, 1980	New	Dam Banjane	Banjanska	7532598.53	4665327.8	152		Skopje	Chucher - Sandevo	Skopsko pole	908.3	625.9	0.43	Fine to coarse loamy	S, SE, SW	7%	<5	25-30%	35000-45000	0.72
	Study for priority dams, 1980	New	Dam Radusa	Raduska	7518074.39	4662846.1	150		Skopje	Saraj	Skopsko pole	941.1	593.2	0.52	Coarse loamy	S, SE, SW	14%	5-10	25-30%	25000-35000	2.05
42	ToR	Existing	Small Irr.scheme Bardovci-Zlokukjani	Lepenec	7530724	4653174	140	Karposh	Skopje	Karposh	Skopsko Pole	955.3	579.2	0.43	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	1.90
	Study for priority dams, 1980	New	Dam Kuceviste	Kuceviska	7534719.13	4665963.4	130		Skopje	Chucher - Sandevo	Skopsko pole	894.4	639.0	0.43	Fine to coarse loamy	S, SE, SW	11%	<5	25-30%	35000-45000	0.72
	ToR	Existing	Small Irr.scheme Drachevo-Batinci	Markova	7533924 7534	4639190 464	110	Sopishte	Skopje	Sopishte/Studenichani	Skopsko Pole	955.9	578.5	0.42	Coarse loamy	NW, NE	2%	<5	25-30%	25000-35000	2.27
43	Cons.Avail.Docum.	Existing	Petrovec	Vardar	7551985.38	4640969	100	Petrovec	Skopje	Petrovec	Skopsko Pole	964.3	570.3	0.42	Gravel to coarse loamy	S, SE, SW	1%	<5	25-30%	<25000	0.64
44	ToR	Existing	Dam Buchinci	small dam	7553733.58	4654054.9	100	Ilinden	Skopje	Ilinden	Skopsko Pole	930.4	603.6	0.42	Gravel to coarse loamy	S, SE, SW	6%	5-10	25-30%	25000-35000	0.75
45	ToR	Existing	Small Irr.scheme Orman-Vuchidol	Lepenec	7529709.37	4659084.7	85	Gjorche Petrov	Skopje	Gjorche Petrov	Skopsko Pole	949.9	584.7	0.43	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	2.76
	Cons.Avail.Docum.	Existing	Radusha	Vardar	7518491.36	4659832.6	71	Saraj	Skopje	Saraj	Skopsko Pole	942.9	591.3	0.47	Coarse loamy	S, SE, SW	2%	5-10	25-30%	25000-35000	2.05
	ToR	Existing	Small Irr.scheme Shishevo-Grchec-Saraj	Treska	7525946.99	4647724.3	56	Saraj	Skopje	Saraj	Skopsko Pole	950.5	583.9	0.44	Coarse loamy	E,W	2%	<5	25-30%	25000-35000	2.05

Belongs to more than one municipality
Irrigated area too big
Irrigated area too small
New dam, high investment

SOUTH EAST REGION

Possible Locati	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the ar	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha
	ToR	Existing	Konska 1 and 2	Konska	7620393	4557931	571	Gevgelija	South-East	Gevgelija	Juzen Vardar	989.9	544.9	0.53	Fine to coarse loamy	S, SE, SW	3%	<5	<20%	35000-45000	2.18
	ToR	Existing	Dam Markova Reka, HMS Strumichko Pole	dam	7635283	4586037	400	Strumica	South-East	Strumica	Strumicko Pole	961.6	573.0	0.52	Fine to coarse loamy	NW, NE	2%	<5	<20%	35000-45000	1.79
	Cons.Avail.Docum.	New	Kosturino	dam on Bukova River	7636664	4581173	400	dam on Bukova River	South-East	Strumica	Strumicko Pole	915.9	618.1	0.52	Fine loamy to coarse loamy	E,W	5%	5-10	<20%	35000-45000	1.79
	Study for priority dams, 1980	New	Dam Lira	Zuica	7624407	4566452	370		South-East	Gevgelija	Juzen Vardar	1000.2	535.0	0.53	Coarse loamy	E,W	3%	5-10	<20%	35000-45000	2.16
	Cons.Avail.Docum.	Existing	Selemli	dam Selemli	7635856	4556307	350	Bogdanci	South-East	Gevgelija/Bogdanci	Juzen Vardar	982.7	552.0	0.53	Fine to coarse loamy	S, SE, SW	5%	5-10	<20%	25000-35000	2.14
46	Cons.Avail.Docum.	Existing	Vasilevo-Dobrejci	Vodocha dam	7636609	4595895	300	Vasilevo	South-East	Vasilevo	Strumicko Pole	960.0	574.5	0.52	Coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	1.60
	Study for priority dams, 1980	New	Dam Raborci	Markova	7633505	4584242	300		South-East	Strumica	Strumicko pole	924.2	609.8	0.52	Gravel to coarse loamy	S, SE, SW	11%	<5	<20%	35000-45000	1.79
47	ToR	Existing	Small Irr.scheme Smolare, HMS Strumichko Pole	local river	7659317	4582455	280	Novo Selo	South-East	Novo Selo	Strumicko Pole	950.8	583.8	0.52	Fine to coarse loamy	N	9%	<5	<20%	35000-45000	0.69
48	ToR	Existing	Small Irr.scheme Mokrievo, HMS Strumichko Pole	local river	7654140	4582395	270	Novo Selo	South-East	Novo Selo	Strumicko Pole	946.3	588.5	0.52	Fine to coarse loamy	N	9%	<5	<20%	35000-45000	0.69
49	ToR	Existing	Small Irr.scheme Staro Konjarevo, HMS Strumichko Pole	local river	7664153	4582044	270	Novo Selo	South-East	Novo Selo	Strumicko Pole	949.7	585.3	0.52	Fine to coarse loamy	N	10%	5-10	<20%	35000-45000	0.69
50	Cons.Avail.Docum.	Existing	Gradec	Vardar	7620375	4578828	264	Gevgelija	South-East	Valandovo	Juzen Vardar	997.8	537.3	0.53	Coarse loamy	S, SE, SW	3%	<5	<20%	>45000	1.98
51	Cons.Avail.Docum.	Existing	Podaresh	Plavaja	7629347	4609307	250	Radovish	South-East	Radovish	Radovishko Pole	941.3	593.0	0.53	Fine to coarse loamy	S, SE, SW	5%	<5	<20%	>45000	1.30
52	ToR	Existing	Small Irr.scheme Koleshino, HMS Strumichko Pole	local river	7651633	4582927	250	Strumica	South-East	Novo Selo	Strumicko Pole	953.9	580.9	0.52	Fine to coarse loamy	NW, NE	5%	5-10	<20%	35000-45000	0.69
53	ToR	Existing	Small Irr.scheme Drazhevo, HMS Strumichko Pole	local river	7660955	4582642	230	Novo Selo	South-East	Novo Selo	Strumicko Pole	950.9	583.6	0.52	Fine to coarse loamy	N	10%	<5	<20%	35000-45000	0.69
	Study for priority dams, 1980	New	Dam Calakli	Kodza Dere, Anska	7640505	4574363	228	Dojran	South-East	Valandovo	Juzen Vardar	976.4	558.0	0.53	Gravel to coarse loamy	S, SE, SW	7%	5-10	<20%	25000-35000	1.43
54	Cons.Avail.Docum.	Existing	Sehovo	Vardar	7628850	4556245	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	1003.0	532.0	0.53	Fine to coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18
55	Cons.Avail.Docum.	Existing	Prdejci	Vardar	7627501	4564051	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	1001.7	533.3	0.53	Coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	2.18
56	Cons.Avail.Docum.	Existing	Kovanska, Sermeninska	Kovanska,Sermeninska	7623807	4563051	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	993.4	541.2	0.53	Fine to coarse loamy	E,W	4%	5-10	<20%	35000-45000	2.18
57	ToR	Existing	Dam Novoselska, HMS Strumichko Pole	dam	7657445	4587259	200	Novo Selo	South-East	Novo Selo	Strumicko Pole	966.0	568.7	0.52	Fine to coarse loamy	S, SE, SW	3%	<5	<20%	35000-45000	0.69
58	Cons.Avail.Docum.	Existing	Toplik	dam	7641152	4565619	180	Dojran	South-East	Dojran	Juzen Vardar	967.3	567.5	0.53	Gravel to coarse loamy	NW, NE	3%	5-10	<20%	25000-35000	0.94
59	Cons.Avail.Docum.	Existing	Miravci (small dam)	small dam	7618217	4575014	174	Gevgelija	South-East	Gevgelija	Juzen Vardar	997.7	537.2	0.53	Fine to coarse loamy	E,W	3%	<5	<20%	35000-45000	2.18
60	Cons.Avail.Docum.	Existing	Vinojug	Vardar	7628411	4559557	150	Gevgelija	South-East	Gevgelija	Juzen Vardar	1000.8	534.1	0.53	Fine to coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	2.18
61	Cons.Avail.Docum.	Existing	Grchishte	local river, dam	7628805	4568688	150	Valandovo	South-East	Valandovo	Juzen Vardar	984.5	550.4	0.53	Fine to coarse loamy	S, SE, SW	8%	5-10	<20%	>45000	1.98
	Study for priority dams, 1980	New	Dam Arazli	Arazliska	7623001	4582782	150		South-East	Valandovo	Juzen Vardar	996.1	539.4	0.52	Coarse loamy	S, SE, SW	9%	<5	<20%	>45000	1.98
	Study for priority dams, 1980	New	Dam Vasilica	Vasilica	7659493	4586980	148		South-East	Novo Selo	Strumicko pole	960.6	573.8	0.52	Fine to coarse loamy	S, SE, SW	10%	<5	<20%	35000-45000	0.69
62	ToR	Existing	Small Irr.scheme Borisovo, HMS Strumichko Pole	local river	7653330	4582541	140	Novo Selo	South-East	Novo Selo	Strumicko Pole	951.9	582.7	0.52	Fine to coarse loamy	N	5%	<5	<20%	35000-45000	0.69
	Study for priority dams, 1980	New	Dam Susica	Kodza Dere	7618950	4611434	130		South-East	Radovish	Radovishko Pole	918.2	616.0	0.53	Fine to coarse loamy	S, SE, SW	14%	<5	<20%	>45000	1.30
63	Cons.Avail.Docum.	Existing	Sretenovo	Dojran Lake	7645906	4560493	120	Dojran	South-East	Dojran	Juzen Vardar	955.5	578.7	0.50	Fine to coarse loamy	NW, NE	6%	<5	<20%	25000-35000	0.94
64	ToR	Existing	HMS Smokvica	Vardar	7624519	4571814	110	Gevgelija	South-East	Gevgelija	Juzen Vardar	1000.4	534.5	0.53	Coarse loamy	S, SE, SW	2%	5-10	<20%	35000-45000	2.18
65	Cons.Avail.Docum.	Existing	Miravci (Stara)	Stara	7623163	4576598	100	Gevgelija	South-East	Gevgelija	Juzen Vardar	998.9	536.1	0.53	Coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18
66	Cons.Avail.Docum.	Existing	Petrushka Reka	Petrushka (Stara)	7616299	4573487	100	Gevgelija	South-East	Gevgelija	Juzen Vardar	937.3	596.1	0.53	Fine to coarse loamy	S, SE, SW	16%	<5	<20%	35000-45000	2.18
	Study for priority dams, 1980	New	Dam Marlada	Rakliska	7623670	4613372	100		South-East	Radovish	Radovishko Pole	911.0	623.8	0.53	Coarse loamy	S, SE, SW	30%	<5	<20%	>45000	1.30
67	ToR	Existing	Dam Konche 3 and 1, HMS Radovishko Pole	dam	7616659	4597741	100	Konche	South-East	Konche	Radovishko Pole	915.3	618.7	0.43	Coarse loamy	NW, NE	4%	<5	<20%	>45000	0.35
68	ToR	Existing	Dam Ilovica, HMS Strumichko Pole	dam	7652041	4594009	90	Bosilovo	South-East	Bosilovo	Strumicko Pole	957.6	577.0	0.52	Fine to coarse loamy	S, SE, SW	3%	5-10	<20%	35000-45000	0.90
69	Cons.Avail.Docum.	Existing	Keramidnica	Vardar	7628822	4561397	80	Bogdanci	South-East	Gevgelija	Juzen Vardar	1002.6	532.4	0.53	Coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18
	Cons.Avail.Docum.	Existing	Oraovica	Oraovachka	7626393	4612310	67	Radovish	South-East	Radovish	Radovishko Pole	927.5	606.7	0.53	Fine to coarse loamy	E,W	6%	<5	<20%	>45000	1.30
	ToR	Existing	Small Irr.scheme Gabrovo, HMS Strumichko Pole	local river	7650025	4582869	60	Strumica	South-East	Strumica	Strumicko Pole	953.1	581.7	0.52	Fine to coarse loamy	N	11%	5-10	<20%	35000-45000	1.79
	ToR	Existing	Dam Chaushica, HMS Strumichko Pole	river Hamzali	7648159	4597524	50	Bosilovo	South-East	Bosilovo	Strumicko Pole	937.7	596.4	0.52	Coarse loamy	S, SE, SW	6%	5-10	<20%	35000-45000	0.90
	Cons.Avail.Docum.	Existing	Dojran 3	small dam	7642156	4568481	38	Dojran	South-East	Dojran	Juzen Vardar	971.7	562.7	0.50	Fine to coarse loamy	S, SE, SW	6%	5-10	<20%	25000-35000	0.94
	Cons.Avail.Docum.	Existing	Bogdanci 2	small dam	7636178	4561767	37	Bogdanci	South-East	Bogdanci	Juzen Vardar	982.0	552.9	0.53	Fine to coarse loamy	N	3%	<5	<20%	25000-35000	2.12
	ToR	Existing	Small Irr.scheme Bansko, HMS Strumichko Pole	local river	7646946	4583656	15	Strumica	South-East	Strumica	Strumicko Pole	956.2	578.2	0.52	Fine to coarse loamy	NW, NE	10%	<5	<20%	35000-45000	1.79

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SOUTH WEST REGION

Possible Locatio	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the are	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha
	Study for priority dams, 1980	New	Dam Izdeglavje	Sateska	7485629	4578636	704		South-West	Debarca	Crn Drim	832.5	700.5	0.48	Coarse loamy	S, SE, SW	9%	<5	>30%	25000-35000	0.88
	Study for priority dams, 1980	New	Dam Prentov most	Mokreska	7492895	4562874	580		South-West	Ohrid	Crn Drim	795.8	735.2	0.48	Coarse loamy	S, SE, SW	37%	5-10	>30%	25000-35000	2.43
	ToR	Existing	HMS Bigor Dolenci-Chelopeci	Treska	7498689	4594176	510	Kichevo	South-West	Kichevo	Crn Drim	879.2	654.4	0.52	Coarse loamy	S, SE, SW	2%	<5	>30%	25000-35000	2.08
70	Cons.Avail.Docum.	Existing	Shum-Vishni	Belichka	7467883	4560683	305	Struga	South-West	Struga	Crn Drim	850.7	682.7	0.54	Gravel loamy to loamy skeletal	S, SE, SW	3%	<5	>30%	<25000	1.11
	Study for priority dams, 1980	New	Dam Godivje	Godivska	7484792	4584269	300		South-West	Debarca	Crn Drim	814.7	718.5	0.48	Fine to coarse loamy	S, SE, SW	12%	5-10	>30%	25000-35000	0.88
71	ToR	Existing	Velmej	spring	7493626	4570611	275	Debarca	South-West	Debarca	Crn Drim	826.0	706.7	0.48	Fine to coarse loamy	S, SE, SW	4%	5-10	>30%	25000-35000	0.88
72	Cons.Avail.Docum.	Existing	Ovoshtarnik Str.	Crn Drim	7473196	4561379	250	Struga	South-West	Struga	Crn Drim	858.7	674.6	0.54	Coarse loamy	S, SE, SW	1%	<5	>30%	<25000	1.11
73	ToR	Existing	Sub system for irrigation from dam Slatino	dam	7487929	4578444	250	Debarca	South-West	Debarca	Crn Drim	834.4	698.6	0.48	Coarse loamy	S, SE, SW	2%	<5	>30%	25000-35000	0.88
	Study for priority dams, 1980	New	Dam Vapila	Vapilica	7487826	4561145	243		South-West	Ohrid	Crn Drim	842.4	690.5	0.48	Fine to coarse loamy	S, SE, SW	11%	<5	>30%	25000-35000	2.43
	Study for priority dams, 1980	New	Dam Dupjani	Rabetinska	7506432	4599120	206		South-West	Vraneshtica	Crn Drim	869.6	663.9	0.52	Fine to coarse loamy	S, SE, SW	10%	5-10	>30%	25000-35000	1.47
74	Cons.Avail.Docum.	New	Vevchani	local river	7465708	4566304	180	Vevchani	South-West	Vevchani	Crn Drim	838.3	695.3	0.54	Fine to coarse loamy	S, SE, SW	7%	<5	>30%	25000-35000	2.19
75	Cons.Avail.Docum.	New	Podgorci	local river	7466019	4568602	180	Struga	South-West	Struga/Vevchani	Crn Drim	834.0	699.7	0.54	Coarse loamy	E,W	7%	<5	>30%	<25000	1.41
76	Cons.Avail.Docum.	Existing	Kolibari	Zajaska reka	7496424	4603631	150	Kichevo	South-West	Kichevo	Crn Drim	867.5	665.7	0.52	Coarse loamy	S, SE, SW	4%	<5	>30%	25000-35000	1.02
77	Cons.Avail.Docum.	Existing	Banjishte	Banjishka Reka	7460870	4601680	150	Debar	South-West	Debar	Crn Drim	860.7	671.5	0.59	Coarse loamy	S, SE, SW	9%	<5	>30%	<25000	0.95
	Study for priority dams, 1980	New	Dam Krapa	Krapska	7527439	4601517	144		South-West	Makedonski Brod	Prilepsko Pole	781.1	751.4	0.42	Fine to coarse loamy	S, SE, SW	15%	5-10	>30%	35000-45000	1.36
78	ToR	Existing	Sub system for irrigation from St.Naum Spring, Ljubanishta	Ohrid Lake	7481056	4531261	142	Ohrid	South-West	Ohrid	Crn Drim	857.5	675.7	0.48	Coarse loamy	NW, NE	3%	20-30	>30%	25000-35000	2.43
79	ToR	Existing	Zajas 2	Zajashka River	7495657	4607234	140	Kichevo	South-West	Kichevo	Crn Drim	854.1	679.5	0.52	Gravel loamy to loamy skeletal	S, SE, SW	9%	<5	>30%	25000-35000	1.56
	Study for priority dams, 1980	New	Dam Baciste	Baciska	7493374	4605273	134		South-West	Zajas	Crn Drim	844.0	688.7	0.52	Gravel l. to loamy skeletal	S, SE, SW	30%	<5	>30%	25000-35000	1.56
	Study for priority dams, 1980	New	Dam Brestani	Brestanska	7464538	4590483	129		South-West	Centar Zupa	Crn Drim	858.7	675.5	0.59	Coarse loamy	N	38%	<5	>30%	<25000	0.49
80	ToR	Existing	Sub system for irrigation Leskoec	local river	7486890	4557083	100	Ohrid	South-West	Ohrid	Crn Drim	846.5	686.3	0.48	Coarse loamy	S, SE, SW	3%	<5	>30%	25000-35000	2.43
81	ToR	Existing	Sub system for irrigation from spring Dzepin	local river	7478471	4567359	100	Struga	South-West	Struga	Crn Drim	854.1	679.1	0.54	Coarse loamy	S, SE, SW	1%	<5	>30%	<25000	1.11
	Study for priority dams, 1980	New	Dam Vapa	Vapska	7463001	4591557	77		South-West	Centar Zupa	Crn Drim	857.8	674.6	0.59	Coarse loamy	S, SE, SW	15%	<5	>30%	<25000	0.49
	Cons.Avail.Docum.	New	Labunishta	local river	7465832	4570063	75	Struga	South-West	Struga	Crn Drim	844.7	689.3	0.54	Coarse loamy	E,W	8%	<5	>30%	<25000	1.11
	Study for priority dams, 1980	New	Dam Balanci	Papradnicka	7463709	4593322	73		South-West	Centar Zupa	Crn Drim	845.2	686.8	0.59	Coarse loamy	S, SE, SW	22%	<5	>30%	<25000	0.49
	ToR	Existing	Greshnica	Zajashka River	7493708	4603685	50	Kichevo	South-West	Kichevo	Crn Drim	859.9	673.9	0.52	Fine to coarse loamy	NW, NE	5%	<5	>30%	25000-35000	1.56
	Cons.Avail.Docum.	Existing	Trebenishta	local river	7479875	4562534	50	Debarca	South-West	Debarca	Crn Drim	855.0	678.1	0.48	Fine to coarse loamy	E,W	2%	<5	>30%	25000-35000	0.88
	Cons.Avail.Docum.	Existing	Botun	Sateska	7482907	4571492	50	Debarca	South-West	Debarca	Crn Drim	843.7	691.0	0.48	Coarse loamy	S, SE, SW	17%	<5	>30%	25000-35000	0.88
	Study for priority dams, 1980	New	Dam Rzinovo	Oreska	7473878	4580943	50		South-West	Struga	Crn Drim	714.4	817.2	0.57	Coarse loamy	S, SE, SW	17%	<5	>30%	<25000	1.11
	Study for priority dams, 1980	New	Dam Zbazdi	Slivnicka	7474524	4579137	50		South-West	Struga	Crn Drim	789.3	740.7	0.54	Coarse loamy	E,W	29%	5-10	>30%	<25000	1.11
	ToR	Existing	Zajas 1	Zajashka River	7494942	4608489	40	Kichevo	South-West	Kichevo	Crn Drim	849.2	685.4	0.52	Coarse loamy	E,W	5%	<5	>30%	25000-35000	1.56
	Study for priority dams, 1980	New	Dam Preseka	No name creek	7485053	4586832	36		South-West	Debarca	Crn Drim	807.3	725.9	0.48	Fine to coarse loamy	S, SE, SW	7%	10-20	>30%	25000-35000	0.88

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VARDAR REGION

Possible Locatio	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the are	Distance from mun.centa	Unemployed	Income per ha	Farmers per ha
	Cons.Avail.Docum.	Existing	Mladost	small dam	7563189	4626064	1200	Veles	Vardar	Veles	Lisiche	947.9	586.3	0.47	Gravel to coarse loamy	S, SE, SW	8%	5-10	20-25%	35000-45000	1.42
	Study for priority dams, 1980	New	Dam Venec	Izvorcica	7557673	4596849	870		Vardar	Chashka	Lisice	932.8	601.1	0.45	Coarse loamy	S, SE, SW	12%	<5	20-25%	25000-35000	1.08
	Study for priority dams, 1980	New	Dam A3	Vitacevski potok	7589767	4571013	650		Vardar	Kavadarci	Tikvesh	817.7	715.3	0.46	Coarse loamy	E,W	16%	<5	20-25%	>45000	2.45
	Study for priority dams, 1980	New	Dam A4	Vitacevski potok	7590545	4572379	565		Vardar	Kavadarci	Tikvesh	820.9	712.4	0.52	Coarse loamy	S, SE, SW	13%	<5	20-25%	>45000	2.45
	Study for priority dams, 1980	New	Dam Gorni Kolibi	Brezica	7547094	4601628	510		Vardar	Chashka	Lisice	937.8	596.9	0.45	Fine to coarse loamy	NW, NE	11%	5-10	20-25%	25000-35000	1.08
	Cons.Avail.Docum.	New	Dam Vinichani	dam on Svekjanska River	7574399	4607020	376	Gradsko	Vardar	Gradsko	Tikvesh	968.4	565.7	0.51	Coarse loamy	S, SE, SW	11%	<5	20-25%	25000-35000	1.14
82	Cons.Avail.Docum.	Existing	Dabnicka Reka	Dabnichka	7582730	4582636	300	Kavadarci	Vardar	Kavadarci	Tikvesh	953.2	581.6	0.51	Fine to coarse loamy	NW, NE	10%	<5	20-25%	>45000	2.45
	Study for priority dams, 1980	New	Dam Nikodin	Glogovicka	7565551	4588443	300		Vardar	Kavadarci	Tikvesh	923.2	611.2	0.52	Coarse loamy	S, SE, SW	13%	10-20	20-25%	>45000	2.37
	Study for priority dams, 1980	New	Dam A5	Vitacevski potok	7590860	4573390	293		Vardar	Kavadarci	Tikvesh	824.7	708.1	0.51	Coarse loamy	NW, NE	8%	5-10	20-25%	>45000	2.45
	Study for priority dams, 1980	New	Dam A6	Vitacevski potok	7591689	4574204	176		Vardar	Kavadarci	Tikvesh	829.6	703.3	0.51	Coarse loamy	NW, NE	12%	5-10	20-25%	>45000	2.45
83	Cons.Avail.Docum.	Existing	Vinichani	Vardar	7576924	4607221	150	Gradsko	Vardar	Gradsko	Tikvesh	982.2	552.4	0.51	Coarse loamy	S, SE, SW	3%	<5	20-25%	25000-35000	1.14
	Study for priority dams, 1980	New	Dam Crveni bregovi	Suvodolica	7587313	4597415	130		Vardar	Kavadarci	Tikvesh	964.6	570.5	0.51	Coarse loamy	NW, NE	8%	<5	20-25%	>45000	2.27
	Study for priority dams, 1980	New	Dam A2	Vitacevski potok	7589295	4570058	104		Vardar	Kavadarci	Tikvesh	810.6	722.3	0.50	Coarse loamy	NW, NE	10%	<5	20-25%	>45000	2.45
84	Cons.Avail.Docum.	Existing	Babuna	Babuna	7567614	4616144	100	Veles	Vardar	Veles	Lisiche	968.4	566.1	0.51	Coarse loamy	NW, NE	11%	<5	20-25%	35000-45000	1.42
85	Cons.Avail.Docum.	Existing	Podles	small dam	7569428	4598934	150	Gradsko	Vardar	Gradsko	Tikvesh	935.7	598.1	0.52	Coarse loamy	S, SE, SW	15%	5-10	20-25%	25000-35000	1.18
	Cons.Avail.Docum.	New	Ivankovci	local river	7569011	4635647	100	Veles	Vardar	Veles	Lisiche	907.6	627.0	0.47	Gravel to coarse loamy	E,W	13%	5-10	20-25%	35000-45000	1.42
	Cons.Avail.Docum.	Existing	Vitanci	Babuna	7562035	4612245	98	Veles	Vardar	Chashka	Lisiche	955.1	578.6	0.45	Coarse loamy	E,W	13%	5-10	20-25%	25000-35000	1.09
	Cons.Avail.Docum.	Existing	Kochilari	Vardar	7570691	4613301	80	Gradsko	Vardar	Gradsko	Tikvesh	976.9	557.7	0.51	Coarse loamy	S, SE, SW	6%	5-10	20-25%	25000-35000	1.14
	Cons.Avail.Docum.	Existing	Farish	small dam	7565524	4591409	78	Chashka	Vardar	Kavadarci	Tikvesh	916.5	617.2	0.52	Coarse loamy	S, SE, SW	8%	10-20	20-25%	>45000	2.42
	Cons.Avail.Docum.	Existing	Lipa	small dam	7604309	4593227	43	Negotino	Vardar	Demir Kapija	Tikvesh	970.0	565.1	0.51	Fine to coarse loamy	NW, NE	12%	5-10	20-25%	>45000	1.42
	Study for priority dams, 1980	New	Dam A1	Vitacevski potok	7588957	4569633	14		Vardar	Kavadarci	Tikvesh	807.0	726.2	0.51	Coarse loamy	NW, NE	6%	<5	20-25%	>45000	2.45

Belongs to more than one municipality
Irrigated area too big
Irrigated area too small
New dam, high investment

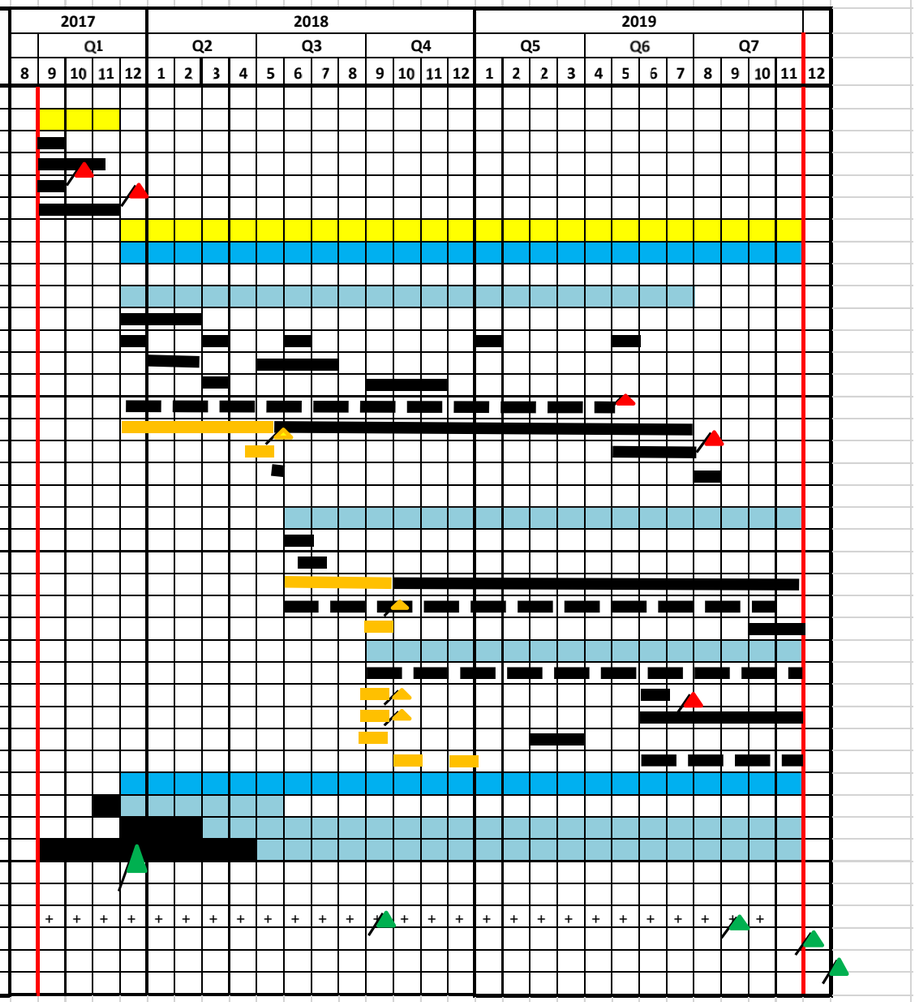
TABLE OF 85 POTENTIAL LOCATIONS

Possible Locations	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the area	Distance from mun.centar	Unemployed	Income per ha	Farmers per ha
EAST REGION																					
1	ToR	Existing	Dam Mavrovica, HMS Bregalnica	Orlica	7581934	4640905	250	Sveti Nikole	East	Sveti Nikole	Bregalnica	939.0	595.2	0.52	Gravel to coarse loamy	S, SE, SW	7%	<5	<20%	<25000	0.41
2	Cons.Avail.Docum.	Existing	Sandanski (Delchevo)	Bregalnica	7650074	4644397	250	Delchevo	East	Delchevo	Bregalnica	874.9	658.5	0.48	Coarse loamy	E,W	5%	<5	<20%	25000-35000	0.89
3	Cons.Avail.Docum.	Existing	Beloshnica-Zletovo	Zletovska	7600278	4640730	200	Probishtip	East	Probishtip	Zletovica	938.3	595.9	0.56	Coarse loamy	S, SE, SW	3%	5-10	<20%	<25000	0.66
4	ToR	Existing	Dam Pishica, HMS Bregalnica	Pishichka River	7600279	4637623	170	Probishtip	East	Probishtip	Zletovica	931.7	602.2	0.56	Gravel to coarse loamy	NW, NE	8%	5-10	<20%	<25000	0.66
5	Cons.Avail.Docum.	Existing	Crn Dol Pehchevo	Crn Dol	7662150	4622284	80	Pehchevo	East	Pehchevo	Bregalnica	781.6	751.8	0.48	Coarse loamy	S, SE, SW	16%	<5	<20%	35000-45000	0.42
6	Cons.Avail.Docum.	Existing	Zletovo	Zletovska	7603636	4650910	80	Probishtip	East	Probishtip	Zletovica	914.0	619.7	0.56	Gravel to coarse loamy	S, SE, SW	7%	<5	<20%	<25000	0.66
NORTH EAST REGION																					
7	Cons.Avail.Docum.	Existing	Studena Bara- Vakuf	Pchinja	7561917	4654992	290	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	955.6	578.9	0.48	Coarse loamy	S, SE, SW	1%	5-10	>30%	<25000	0.59
8	ToR	Existing	HMS Dovezance-Jacince-Klechovce	Kriva Reka	7575534	4664452	250	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	944.9	589.5	0.44	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0.59
9	Cons.Avail.Docum.	Existing	Slavishko Pole	Kriva Reka	7599579	4670511	250	Rankovce	North-East	Rankovce	Kum.-Lipkovsko pole	907.9	626.0	0.43	Gravel to coarse loamy	S, SE, SW	3%	<5	>30%	<25000	0.43
10	Cons.Avail.Docum.	Existing	Dragomanci	Pchinja	7570529	4676710	136	Staro Nagorichane	North-East	Staro Nagorichane	Kum.-Lipkovsko pole	936.8	597.6	0.47	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0.38
11	ToR	Existing	HMS Shupli Kamen-Zubovce	Pchinja	7569133	4663573	122	Kumanovo	North-East	Kumanovo	Kum.-Lipkovsko pole	948.5	585.9	0.48	Coarse loamy	S, SE, SW	2%	<5	>30%	<25000	0.59
12	Cons.Avail.Docum.	Existing	Mozdivnjak	local river	7605100	4667979	110	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	870.7	663.1	0.43	Fine to coarse loamy	NW, NE	16%	5-10	>30%	35000-45000	0.93
13	Cons.Avail.Docum.	New	Konopnica	local river	7607670	4670693	75	Kriva Palanka	North-East	Kriva Palanka	Kum.-Lipkovsko pole	869.8	664.2	0.43	Fine to coarse loamy	NW, NE	12%	<5	>30%	35000-45000	0.93
PELAGONIJA																					
14	Study for priority dams, 1980	New	Dam Podmol	Pisokolska	7548182	4562514	500		Pelagonija	Prilep	Prilepsko Pole	867.3	665.8	0.50	Coarse loamy	S, SE, SW	5%	5-10	20-25%	>45000	1.69
15	Cons.Avail.Docum.	Existing	Suvodolsko/REK Ezerce	small dam	7546003	4547126	468	Novaci	Pelagonija	Novaci	Bitolsko Pole	882.4	651.3	0.50	Coarse loamy	S, SE, SW	1%	<5	20-25%	<25000	0.39
16	Cons.Avail.Docum.	New	Gabalavci	Strezevo dam	7517029	4555714	300	Bitola	Pelagonija	Bitola	Bitolsko Pole	874.3	659.3	0.50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	<25000	0.67
17	ToR	Existing	Small Irr.scheme Desovo, dam Desovo 1	Suvodolichka	7543046	4593010	280	Dolneni	Pelagonija	Dolneni	Prilepsko pole	859.0	674.3	0.50	Coarse loamy	S, SE, SW	4%	5-10	20-25%	35000-45000	0.45
18	Cons.Avail.Docum.	Existing	Dihovo	Dihovska	7522840	4543023	270	Bitola	Pelagonija	Bitola	Bitolsko Pole	841.3	692.4	0.50	Fine to coarse loamy	NW, NE	8%	<5	20-25%	<25000	0.67
19	Cons.Avail.Docum.	Existing	Debreshte	Crna	7529810	4587799	251	Dolneni	Pelagonija	Dolneni	Prilepsko pole	878.1	655.5	0.50	Gravel to coarse loamy	S, SE, SW	1%	5-10	20-25%	35000-45000	0.45
20	ToR	Existing	HMS Topolchani	Crna	7534818	4565321	250	Mogila	Pelagonija	Prilep	Prilepsko pole	882.2	651.4	0.50	Coarse loamy	S, SE, SW	2%	<5	20-25%	>45000	1.57
21	Cons.Avail.Docum.	Existing	Crna (upstream)	Crna	7510586	4572131	250	Demir Hisar	Pelagonija	Demir Hisar	Bitolsko Pole	866.9	666.6	0.50	Coarse loamy	S, SE, SW	3%	<5	20-25%	35000-45000	0.94
22	ToR	Existing	Small Irr.scheme Brailovo, dam Brailovo	Suvodolichka	7539642	4593508	240	Dolneni	Pelagonija	Dolneni	Prilepsko pole	862.7	670.9	0.50	Coarse loamy	S, SE, SW	6%	5-10	20-25%	35000-45000	0.45
23	Cons.Avail.Docum.	Existing	Krushevo	Selichka	7524049	4579444	220	Krushevo	Pelagonija	Krushevo	Prilepsko pole	867.2	666.9	0.50	Fine to coarse loamy	E,W	4%	<5	20-25%	>45000	0.71
24	Cons.Avail.Docum.	Existing	Bistrica	local river	7530604	4537383	200	Bitola	Pelagonija	Bitola	Bitolsko Pole	882.3	651.5	0.50	Coarse loamy	S, SE, SW	2%	<5	20-25%	<25000	0.67
25	Cons.Avail.Docum.	New	Lera-Kazhani	Strezevo dam	7514735	4554565	200	Bitola	Pelagonija	Bitola	Bitolsko Pole	839.7	693.5	0.53	Fine loamy to coarse loamy	N	4%	<5	20-25%	<25000	0.67
26	ToR	Existing	Intake on Kranska River (Krani)	Kranska	7509419	4532678	153	Resen	Pelagonija	Resen	Crn Drim	814.0	718.1	0.58	Fine to coarse loamy	S, SE, SW	7%	10-20	20-25%	>45000	1.37
27	Cons.Avail.Docum.	Existing	Graeshnica	local river	7529634	4528496	150	Bitola	Pelagonija	Bitola	Bitolsko Pole	870.3	663.9	0.50	Fine to coarse loamy	E,W	7%	5-10	20-25%	<25000	0.67
28	Cons.Avail.Docum.	Existing	Buchin	Crna	7526559	4570534	120	Krushevo	Pelagonija	Krushevo	Prilepsko pole	879.1	654.5	0.50	Coarse loamy	S, SE, SW	3%	5-10	20-25%	>45000	0.71
29	Cons.Avail.Docum.	Existing	Krushevsko Ezero	small dam	7520810	4581800	106	Krushevo	Pelagonija	Krushevo	Prilepsko pole	735.4	797.0	0.50	Coarse loamy	S, SE, SW	20%	<5	20-25%	>45000	0.71
30	ToR	Existing	Small Dam Makazi	dam	7506002	4546265	95	Resen	Pelagonija	Resen	Crn Drim	807.1	724.9	0.58	Gravel loamy to loamy skeletal	NW, NE	8%	<5	20-25%	>45000	1.30
31	ToR	Existing	Intake on Brajchinska River (Ljubojno)	Brajchinska	7511967	4527999	84	Resen	Pelagonija	Resen	Crn Drim	816.2	716.2	0.58	Fine to coarse loamy	E,W	4%	10-20	20-25%	>45000	1.37
POLOG																					
32	Cons.Avail.Docum.	Existing	Vrapchishka reka	Vrapchishka	7493883	4632632	280	Vrapchishte	Polog	Vrapchishte	Polog	894.9	639.1	0.50	Fine to coarse loamy	E,W	2%	<5	25-30%	<25000	1.04
33	Cons.Avail.Docum.	Existing	Lakavica	Lakavica	7494010	4622948	161	Gostivar	Polog	Gostivar	Polog	894.1	640.4	0.49	Coarse loamy	E,W	5%	<5	25-30%	25000-35000	1.33
34	Cons.Avail.Docum.	Existing	Dzepchishte	local river	7500027	4653874	160	Tetovo	Polog	Tetovo	Polog	912.7	621.5	0.52	Fine to coarse loamy	S, SE, SW	3%	<5	25-30%	25000-35000	1.39
35	Cons.Avail.Docum.	Existing	Shkoza	Vardar	7489992	4627022	142	Gostivar	Polog	Gostivar	Polog	885.2	648.5	0.49	Coarse loamy	NW, NE	5%	<5	25-30%	25000-35000	1.33
36	Cons.Avail.Docum.	Existing	Banjichko Pole	Vardar	7490321	4627334	140	Gostivar	Polog	Gostivar	Polog	891.0	643.0	0.49	Coarse loamy	NW, NE	3%	<5	25-30%	25000-35000	1.33
37	ToR	Existing	Rechane	River Duf	7484968	4622540	120	Gostivar	Polog	Gostivar	Polog	848.6	685.0	0.49	Coarse loamy	NW, NE	12%	<5	25-30%	25000-35000	1.33
38	Cons.Avail.Docum.	Existing	Balin Dol	Lakavica	7494385	4626841	116	Gostivar	Polog	Gostivar	Polog	897.7	635.8	0.49	Coarse loamy	NW, NE	4%	<5	25-30%	25000-35000	1.33
39	Cons.Avail.Docum.	Existing	Rechica	local river	7495862	4649230	114	Tetovo	Polog	Tetovo	Polog	912.7	621.4	0.48	Fine to coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	1.39
40	Cons.Avail.Docum.	Existing	Neproshteno	local river	7502123	4655858	114	Tearce	Polog	Tearce	Polog	913.7	620.3	0.52	Fine to coarse loamy	S, SE, SW	3%	<5	25-30%	<25000	1.45

Possible Locations	Source	Status	IRR System	Water Source (River)	intake X	intake Y	Total or Possible IRR Area (ha)	Intake (Municipality)	IRR Area Region	IRR Area Municipality	WM Enterprice	Eto	Precipitation (mm)	Kc	Soil Texture	Aspect	Slope of the area	Distance from mun.centar	Unemployed	Income per ha	Farmers per ha
SKOPJE																					
41	ToR	Existing	Small Irr.scheme Rashche-Vlae-Vrelo	Vardar	7521145	4654510	325	Saraj	Skopje	Saraj	Skopsko Pole	948.9	585.5	0.45	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	2.05
42	ToR	Existing	Small Irr.scheme Bardovci-Zlokukjani	Lepenec	7530724	4653174	140	Karposh	Skopje	Karposh	Skopsko Pole	955.3	579.2	0.43	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	1.90
43	Cons.Avail.Docum.	Existing	Petrovec	Vardar	7551985	4640969	100	Petrovec	Skopje	Petrovec	Skopsko Pole	964.3	570.3	0.42	Gravel to coarse loamy	S, SE, SW	1%	<5	25-30%	<25000	0.64
44	ToR	Existing	Dam Buchinci	small dam	7553734	4654055	100	Ilinden	Skopje	Ilinden	Skopsko Pole	930.4	603.6	0.42	Gravel to coarse loamy	S, SE, SW	6%	5-10	25-30%	25000-35000	0.75
45	ToR	Existing	Small Irr.scheme Orman-Vuchidol	Lepenec	7529709	4659085	85	Gjorche Petrov	Skopje	Gjorche Petrov	Skopsko Pole	949.9	584.7	0.43	Coarse loamy	S, SE, SW	2%	<5	25-30%	25000-35000	2.76
SOUTH EAST REGION																					
46	Cons.Avail.Docum.	Existing	Vasilevo-Dobrejci	Vodocha Dam	7636609	4595895	300	Vasilevo	South-East	Vasilevo	Strumicko Pole	960.0	574.5	0.52	Coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	1.60
47	ToR	Existing	Small Irr.scheme Smolare, HMS Strumichko Pole	local river	7659317	4582455	280	Novo Selo	South-East	Novo Selo	Strumicko Pole	950.8	583.8	0.52	Fine to coarse loamy	N	9%	<5	<20%	35000-45000	0.69
48	ToR	Existing	Small Irr.scheme Mokrievo, HMS Strumichko Pole	local river	7654140	4582395	270	Novo Selo	South-East	Novo Selo	Strumicko Pole	946.3	588.5	0.52	Fine to coarse loamy	N	9%	<5	<20%	35000-45000	0.69
49	ToR	Existing	Small Irr.scheme Staro Konjarevo, HMS Strumichko Pole	local river	7664153	4582044	270	Novo Selo	South-East	Novo Selo	Strumicko Pole	949.7	585.3	0.52	Fine to coarse loamy	N	10%	5-10	<20%	35000-45000	0.69
50	Cons.Avail.Docum.	Existing	Gradec	Vardar	7620375	4578828	264	Gevgelija	South-East	Valandovo	Juzen Vardar	997.8	537.3	0.53	Coarse loamy	S, SE, SW	3%	<5	<20%	>45000	1.98
51	Cons.Avail.Docum.	Existing	Podaresh	Plavaja	7629347	4609307	250	Radovish	South-East	Radovish	Radovishko Pole	941.3	593.0	0.53	Fine to coarse loamy	S, SE, SW	5%	<5	<20%	>45000	1.30
52	ToR	Existing	Small Irr.scheme Koleshino, HMS Strumichko Pole	local river	7651633	4582927	250	Strumica	South-East	Novo Selo	Strumicko Pole	953.9	580.9	0.52	Fine to coarse loamy	NW, NE	5%	5-10	<20%	35000-45000	0.69
53	ToR	Existing	Small Irr.scheme Drazhevo, HMS Strumichko Pole	local river	7660955	4582642	230	Novo Selo	South-East	Novo Selo	Strumicko Pole	950.9	583.6	0.52	Fine to coarse loamy	N	10%	<5	<20%	35000-45000	0.69
54	Cons.Avail.Docum.	Existing	Sehovo	Vardar	7628850	4556245	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	1003.0	532.0	0.53	Fine to coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18
55	Cons.Avail.Docum.	Existing	Prdejci	Vardar	7627501	4564051	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	1001.7	533.3	0.53	Coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	2.18
56	Cons.Avail.Docum.	Existing	Kovanska, Sermeninska	Kovanska,Sermeninska	7623807	4563051	200	Gevgelija	South-East	Gevgelija	Juzen Vardar	993.4	541.2	0.53	Fine to coarse loamy	E,W	4%	5-10	<20%	35000-45000	2.18
57	ToR	Existing	Dam Novoselska, HMS Strumichko Pole	dam	7657445	4587259	200	Novo Selo	South-East	Novo Selo	Strumicko Pole	966.0	568.7	0.52	Fine to coarse loamy	S, SE, SW	3%	<5	<20%	35000-45000	0.69
58	Cons.Avail.Docum.	Existing	Toplik	dam	7641152	4565619	180	Dojran	South-East	Dojran	Juzen Vardar	967.3	567.5	0.53	Gravel to coarse loamy	NW, NE	3%	5-10	<20%	25000-35000	0.94
59	Cons.Avail.Docum.	Existing	Miravci (small dam)	small dam	7618217	4575014	174	Gevgelija	South-East	Gevgelija	Juzen Vardar	997.7	537.2	0.53	Fine to coarse loamy	E,W	3%	<5	<20%	35000-45000	2.18
60	Cons.Avail.Docum.	Existing	Vinojug	Vardar	7628411	4559557	150	Gevgelija	South-East	Gevgelija	Juzen Vardar	1000.8	534.1	0.53	Fine to coarse loamy	S, SE, SW	2%	<5	<20%	35000-45000	2.18
61	Cons.Avail.Docum.	Existing	Grchishte	local river, dam	7626144	4567392	150	Valandovo	South-East	Valandovo	Juzen Vardar	984.5	550.4	0.53	Fine to coarse loamy	S, SE, SW	8%	5-10	<20%	>45000	1.98
62	ToR	Existing	Small Irr.scheme Borisovo, HMS Strumichko Pole	local river	7653330	4582541	140	Novo Selo	South-East	Novo Selo	Strumicko Pole	951.9	582.7	0.52	Fine to coarse loamy	N	5%	<5	<20%	35000-45000	0.69
63	Cons.Avail.Docum.	Existing	Sretenovo	Dojran Lake	7645906	4560493	120	Dojran	South-East	Dojran	Juzen Vardar	955.5	578.7	0.50	Fine to coarse loamy	NW, NE	6%	<5	<20%	25000-35000	0.94
64	ToR	Existing	HMS Smokvica	Vardar	7624519	4571814	110	Gevgelija	South-East	Gevgelija	Juzen Vardar	1000.4	534.5	0.53	Coarse loamy	S, SE, SW	2%	5-10	<20%	35000-45000	2.18
65	Cons.Avail.Docum.	Existing	Miravci (Stara)	Stara	7623163	4576598	100	Gevgelija	South-East	Gevgelija	Juzen Vardar	998.9	536.1	0.53	Coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18
66	Cons.Avail.Docum.	Existing	Petrushka Reka	Petrushka (Stara)	7616299	4573487	100	Gevgelija	South-East	Gevgelija	Juzen Vardar	937.3	596.1	0.53	Fine to coarse loamy	S, SE, SW	16%	<5	<20%	35000-45000	2.18
67	ToR	Existing	Dam Konche 3 and 1, HMS Radovishko Pole	dam	7616659	4597741	100	Konche	South-East	Konche	Radovishko Pole	915.3	618.7	0.43	Coarse loamy	NW, NE	4%	<5	<20%	>45000	0.35
68	ToR	Existing	Dam Ilovica, HMS Strumichko Pole	dam	7652041	4594009	90	Bosilovo	South-East	Bosilovo	Strumicko Pole	957.6	577.0	0.52	Fine to coarse loamy	S, SE, SW	3%	5-10	<20%	35000-45000	0.90
69	Cons.Avail.Docum.	Existing	Keramidnica	Vardar	7628822	4561397	80	Bogdanci	South-East	Gevgelija	Juzen Vardar	1002.6	532.4	0.53	Coarse loamy	S, SE, SW	1%	<5	<20%	35000-45000	2.18
SOUTH WEST REGION																					
70	Cons.Avail.Docum.	Existing	Shum-Vishni	Belichka	7467883	4560683	305	Struga	South-West	Struga	Crn Drim	850.7	682.7	0.54	Gravel loamy to loamy skeletal	S, SE, SW	3%	<5	>30%	<25000	1.11
71	ToR	Existing	Velmej	spring	7493626	4570611	275	Debarca	South-West	Debarca	Crn Drim	826.0	706.7	0.48	Fine to coarse loamy	S, SE, SW	4%	5-10	>30%	25000-35000	0.88
72	Cons.Avail.Docum.	Existing	Ovoshtarnik Str.	Crn Drim	7473196	4561379	250	Struga	South-West	Struga	Crn Drim	858.7	674.6	0.54	Coarse loamy	S, SE, SW	1%	<5	>30%	<25000	1.11
73	ToR	Existing	Sub system for irrigation from dam Slatino	dam	7487929	4578444	250	Debarca	South-West	Debarca	Crn Drim	834.4	698.6	0.48	Coarse loamy	S, SE, SW	2%	<5	>30%	25000-35000	0.88
74	Cons.Avail.Docum.	New	Vevchani	local river	7465708	4566304	180	Vevchani	South-West	Vevchani	Crn Drim	838.3	695.3	0.54	Fine to coarse loamy	S, SE, SW	7%	<5	>30%	25000-35000	2.19
75	Cons.Avail.Docum.	New	Podgorci	local river	7466019	4568602	180	Struga	South-West	Struga/Vevchani	Crn Drim	834.0	699.7	0.54	Coarse loamy	E,W	7%	<5	>30%	<25000	1.41
76	Cons.Avail.Docum.	Existing	Kolibari	Zajaska reka	7496424	4603631	150	Kichevo	South-West	Kichevo	Crn Drim	867.5	665.7	0.52	Coarse loamy	S, SE, SW	4%	<5	>30%	25000-35000	1.02
77	Cons.Avail.Docum.	Existing	Banjishte	Banjishka Reka	7460870	4601680	150	Debar	South-West	Debar	Crn Drim	860.7	671.5	0.59	Coarse loamy	S, SE, SW	9%	<5	>30%	<25000	0.95
78	ToR	Existing	Sub system for irrigation from St.Naum Spring, Ljubanishta	Ohrid Lake	7481056	4531261	142	Ohrid	South-West	Ohrid	Crn Drim	857.5	675.7	0.48	Coarse loamy	NW, NE	3%	20-30	>30%	25000-35000	2.43
79	ToR	Existing	Zajas 2	Zajashka River	7495657	4607234	140	Kichevo	South-West	Kichevo	Crn Drim	854.1	679.5	0.52	Gravel loamy to loamy skeletal	S, SE, SW	9%	<5	>30%	25000-35000	1.56
80	ToR	Existing	Sub system for irrigation Leskoec	local river	7486890	4557083	100	Ohrid	South-West	Ohrid	Crn Drim	846.5	686.3	0.48	Coarse loamy	S, SE, SW	3%	<5	>30%	25000-35000	2.43
81	ToR	Existing	Sub system for irrigation from spring Dzepin	local river	7478471	4567359	100	Struga	South-West	Struga	Crn Drim	854.1	679.1	0.54	Coarse loamy	S, SE, SW	1%	<5	>30%	<25000	1.11
VARDAR																					
82	Cons.Avail.Docum.	Existing	Dabnicka Reka	Dabnichka	7582730	4582636	300	Kavadarci	Vardar	Kavadarci	Tikvesh	953.2	581.6	0.51	Fine to coarse loamy	NW, NE	10%	<5	20-25%	>45000	2.45
83	Cons.Avail.Docum.	Existing	Vinichani	Vardar	7576924	4607221	150	Gradsko	Vardar	Gradsko	Tikvesh	982.2	552.4	0.51	Coarse loamy	S, SE, SW	3%	<5	20-25%	25000-35000	1.14
84	Cons.Avail.Docum.	Existing	Babuna	Babuna	7567614	4616144	100	Veles	Vardar	Veles	Lisiche	968.4	566.1	0.51	Coarse loamy	NW, NE	11%	<5	20-25%	35000-45000	1.42
85	Cons.Avail.Docum.	Existing	Podles	small dam	7569428	4598934	150	Gradsko	Vardar	Gradsko	Tikvesh	935.7	598.1	0.52	Coarse loamy	S, SE, SW	15%	5-10	20-25%	25000-35000	1.18

ANNEX 3: TENTATIVE WORK PLAN

Ref No:	RESULTS AND INDICATIVE ACTIVITIES	TIME	PERIOD
	MOBLISATION OF THE CONTRACTOR	**Monday 4th September 2017**	
A	**INCEPTION PHASE**	September 2017-November 2017	3 months
	Data collection and evaluation		
	Site visits and consultations		
A1	Project screening study and Screening Report *(approx. 80 possible sites)*		
A2	Pre-Feasibility Report and Pre-Feasibility Studies study *(approx. 15-20 sites)*		
	IMPLEMENTATION PHASE		
B1	***COMPONENT 1***		
	PHASE 1		
B1.1	**Feasibility Study**	December 2017-August2019	21 months
	Data collection and evaluation		
	Consultations with farmers and beneficiaries	Monday 4th December 2017	
	Site investigations		
	Land use and crop production study and assessment		
	Environmental Impact Assessments		
	Feasibility Study *(at least 6-8 sites)*		
	Feasibility Report		
	Review of Feasibility Report by Steering Committee and MAFWE		
	PHASE 2		
B1.2	***Design Works*** *(6-8 sites)*	June 2018-December 2019	19 months
	Review and evaluation of previous studies/reports/results		
	Design criteria study and Design Criteria Report		
	Detailed technical design works		
	Technical drawings		
	Design Report		
B1.3	***Tender Dossiers*** for works contracts under PRAG *(6-8 sites)*	September 2018-December 2019	16 months
	Tender preperation study		
	Procurement Packaging		
	Tender Dossiers for works contracts for 6-8 small scale irrigation schemes		
	ToRs for works supervision service		
	Tender evaluation process		
B2	***COMPONENT 2***		
B2.1	Methodology for Water Tariff	November 2017-May 2018	6 months
B2.2	Support to Farmers Groups	December 2017-December 2019	throughout
B2.3	Training for Water Management Authorities	May 2018- December 2019	throughout
	REPORTS		
	Inception Report	Monday 4th December 2017	
	Monthly Progress Briefs	5 days after end of each month	
	Interim Reports (annually, 2 Interim Reports)	1 Sept. 2018 & 1 Sept. 2019	
	Draft Final Report	30 November 2019	
	Final Report	Monday, 2nd December 2019	



ANNEX 4: LISTS OF ATTENDANCE FROM FARMERS MEETINGS

ANNEX 5: BIBLIOGRAPHY

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