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GEORGIA (ORIO13/GE/01)

# Advisory Review of the ESIA for the Rehabilitation of the Zemo–Samgori Irrigation Project



5 October 2018  
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## Advisory Report by the NCEA

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**To** Netherlands Enterprise Agency (RVO.nl)

**Attn** Mr Z. Lazic

**From** The Netherlands Commission for Environmental Assessment (NCEA)

**Date** 5 October 2018

**Subject** **Advisory review of the ESIA for the Rehabilitation of the Zemo-Samgori Irrigation Project, Georgia**

By: The Secretariat of the Netherlands Commission for Environmental Assessment – Mr A.J. Kolhoff. Quality control by: Ms G.J. van Boven

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# 1. Introduction

This is the third advisory report prepared by a working group of the Netherlands Commission for Environmental Assessment in which the findings are presented of a review of the quality of the ESIA report (August, 2018) for the rehabilitation of Zemo-Samgori irrigation project in Georgia.

## **The project initiative**

The Zemo-Samgori Irrigation System is a large irrigation scheme north-east of Tbilisi, Georgia that is located in the sub-basin of the Iori river (see Annex 1 for a map of the project area). It was developed in the 1950s and 1960s and in use until 1991. In the post-soviet era (after the split-up in 1991) this irrigation system deteriorated. Deterioration was due to a shift in production systems (brought about by de-collectivisation and introduction of smallholder agriculture) and the lack of funds for operation and maintenance. The majority of the farmers have shifted to rain fed agriculture and extensive animal husbandry, realising far lower production figures and income than during the soviet period when the full irrigation scheme was functional. Over the period that the system deteriorated, farmers developed mistrust in government agencies who are responsible for water distribution and maintenance of the main, secondary and tertiary canals.

Having become a net importer of food, the Government of Georgia (GoG) has decided to intensify agriculture in order to realise economic development. In some regions of the country this needs to be achieved through the provision of irrigation services. In 2012, the GoG developed a new plan for the agricultural sector, set out and approved in the 'Strategy of Agriculture Development of Georgia for 2012-2022'.

This strategy foresees as priority (among others) the revitalisation of irrigated agriculture through rehabilitation, reconstruction and modernisation of old irrigation schemes. Following the approval of the above strategy, the Ministry of Agriculture has restructured the government agencies entrusted with the management of irrigation and drainage infrastructure (now the Georgian United Amelioration Systems Company of Georgia, GA) and proposed (amongst others) the rehabilitation of the Zemo-Samgori irrigation scheme at an estimated cost of 40 million Euro. GA has obtained government funds to rehabilitate major parts of the primary irrigation canals of this scheme. GA asked the Netherlands Enterprise Agency (RVO) to fund the rehabilitation of the remaining parts, primarily the secondary and tertiary structures of the scheme through ORIO funding under the 2013 ORIO call for proposals. With cost eligible for ORIO funding, a grant of 15 million Euro has been requested by the GoG. The proposed project is the largest project in the ORIO programme. GA has hired Eptisa, an international consultancy firm to execute the scoping report and subsequently the Environmental and Social Impact Assessment (ESIA)<sup>1</sup>.

At the start of the ESIA process, in the first quarter of 2016, ESIA was not obligatory for this project under the Environmental Impact Assessment (EIA) legislation of Georgia. Although

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<sup>1</sup> The term Environmental and Social Impact Assessment (ESIA) is used by RVO to emphasise that social aspects are included. In Georgia one uses the term Environmental Impact Assessment (EIA) and social aspects can be included when relevant.

this type of project is obligatory under the new EIA legislation that has been established in September 2017. It has been agreed upon between GA and the Georgian EIA authority that there is no need to follow the new EIA procedure because at that time it was expected that the ESIA would have been finished before the establishment of the new EIA legislation. However, the ESIA has not yet been approved and the new EIA legislation is established so question arises what the position is of the EIA authority concerning this EIA procedure. This might especially be relevant for public consultation and the NCEA recommends to verify the need for EIA under the new Georgian EIA legislation.

RVO requires that an ESIA is available to support decision making on funding of this project. Moreover, according to the IFC Performance Standards, which ORIO funded projects must comply with, a full ESIA is obligatory when more than 10.000 hectares is developed or rehabilitated. Upon request of RVO, GA as the proponent of this project has drafted a scoping report for this ESIA in 2016.

### **Involvement of the NCEA<sup>2</sup>**

On request of RVO the NCEA is involved in the ESIA process since the 1<sup>st</sup> quarter of 2016. This resulted in the following two advisory reports on scoping. This advice on review is the third advisory report that has been made during this process.

1<sup>st</sup> Advice: in March 2016 RVO asked the NCEA to provide guidance for the scoping report, dd 12 April this advice was submitted to RVO. According to RVO this advice was not adequately followed and therefore they requested for another advice including a site visit by the NCEA.

2<sup>nd</sup> Advice: in September 2016, RVO asked the NCEA to prepare a second advice on the scoping report for the ESIA for this project. This advisory report had to meet:

- the requirements for EIA according to the new EIA legislation established in September 2017;
- international good practice for ESIA for irrigation projects<sup>3</sup>;
- the IFC Performance standards.

As part of the preparation of this advice a site visit (27–30 September, 2016) has been conducted to Georgia including a one-day field visit to the project area. This advisory report was made publicly available on 21 October 2016.

3<sup>rd</sup> Advice: on March 30, 2018 the NCEA was asked by RVO to review the ESIA report that was received on April 6. The main purpose of this advisory review report is to give advice on the quality of the ESIA report. Preliminary findings have been discussed with RVO resulting in a meeting between experts of the NCEA and experts on the Georgian side on 18 May. As a result of this meeting supplementary information has been prepared and was sent to the NCEA on May 29. A draft of this advisory report has been discussed with RVO on 15 June. Based upon the draft advisory report GA has revised the ESIA report and a new version of the ESIA report (August 2017) was submitted to the NCEA for review. In this advisory review report the findings are presented of the review of the ESIA report that was submitted in

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<sup>2</sup> The Netherlands Commission for Environmental Assessment (NCEA) is an independent statutory body of experts based in the Netherlands and has provided independent advice on EIA in the Netherlands since 1985 and abroad since 1993.

<sup>3</sup> M.G. Bos, R.A.L. Kselik, R.G. Allen and D.J. Molden 2008. Water requirements for irrigation and the environment. Springer. Dordrecht.

August 2017. A draft of this advisory review report has been discussed with RVO. The final advisory review report has been made publicly available.

RVO informed the NCEA dd. 28 August 2018, that the scope of the project to rehabilitate about 25.000 hectares of the Zemo–Samgori irrigation scheme has been changed. The main reason for this change is, that the necessary availability of water during the peak demand could not be justified by GA. The review of the latest version of the ESIA report (August 2018) by the NCEA confirms this lack of justification. The NCEA has been informed by RVO that it has been agreed with the Ministry of Agriculture and GA that the scope of the adjusted project will be limited to minimum 8.000 hectares and maximum 12.000 hectares. A new project proposal will be developed and a new ESIA is required. In chapter 4 some guidance is provided by the NCEA for the content of this new ESIA.

### **Approach taken by the NCEA**

This advice was prepared by a working group of experts acting on behalf of the NCEA. The group comprises expertise in the following disciplines: hydrology, civil engineering of irrigation systems, agricultural, social and socio–economic aspects. See Annex 2 for the composition of the working group.

The NCEA has reviewed the following version of the ESIA report:

- Georgian Amelioration, Rehabilitation of the Zemo–Samgori Irrigation System, Detailed engineering design and bill of quantities ESIA report, deliverable 2, August 2018.

For the review of the ESIA report the NCEA has made use of the following reference framework:

- the Netherlands Commission for Environmental Assessment; the 2<sup>nd</sup> advice on the Scoping report for the ESIA for the Rehabilitation of the Zemo–Samgori Irrigation project, Georgia (21 October 2016); this advice includes international good practice for ESIA for irrigation projects;
- the IFC Performance standards.

RVO has also asked the NCEA to assess to what extent information provided by the ESIA report has adequately been used in the financial–economic feasibility study. The NCEA has not been able to make this assessment as the financial–economic study was not available during the review of the ESIA report.

### **Reading guide**

In chapter 2 the main findings are presented. In chapter 3 two tables are presented each with three columns. In the first column, the recommendations in the earlier scoping advice (2<sup>nd</sup> version of October 2016) by the NCEA are presented. In third column, the NCEA assessed to what extend these recommendations were followed and in the third column it is indicated whether the recommendations were fully, partially or not followed.

## 2. Main findings

The NCEA appreciates all the time and effort that has been invested to finalise this Environmental and Social Impact Assessment report for the rehabilitation of the Zemo–Samgori irrigation scheme. The ESIA contains a lot of valuable data. Especially, we would like to mention the considerable investments that have been made to inform and consult the affected people. The ESIA is in general very descriptive and on the physical structures of the irrigation scheme a lot of tables and calculations are presented. In the latter ESIA version (August 2018) more emphasis has been given on the water availability at system level and at field level. However, this additional information still does not convince the NCEA that the available water is sufficient to irrigate 25.837 ha because of the many assumptions that are presented on the basis of the water balance and on the development of the agricultural production at field level, the proposed water distribution, how the organisational set-up is implemented in such a complicated system and how the system is made financial sustainable. In the advice by the NCEA dd. 21 October 2016 it was emphasised that it is necessary to justify the development of this irrigation scheme with a proposed command area of about 25.837 hectare by providing an adequate water balance. This advice was based on the knowledge obtained from the various project reports provided by GA and the field visit in 2016 where the NCEA indicated to have doubts whether sufficient water is available to irrigate the proposed command area. The ESIA did not take away these doubts. The NCEA identified main shortcomings concerning the following issues. These issues are explained in this chapter and recommendations are provided to remedy these shortcomings:

- Water balance;
- Alternatives for water availability, distribution and use;
- Water management;
- IFC Performance Standards.

### **Water balance**

The information provided in the ESIA on the water balance for the irrigation scheme is incomplete and partly based on assumptions that are not supported by science / good practice or with governmental agreements. As a result, no justification is provided that water delivery can be secured for the entire command area of about 25.837 hectare during the peak demand in July and August for four out of five years.

- The supplemental information to the ESIA report shows for example the capacity at the intake being between 11,5 and 13,0 m<sup>3</sup>/s. The capacity of the Upper Main Canal is restricted because just after the intake the canal passes a tunnel in the mountain with a limited capacity of 13,0 m<sup>3</sup>/s. A capacity of 13 m<sup>3</sup>/s is not sufficient to irrigate the whole command area of 25.837 ha in the peak season which is between 25 and 30m<sup>3</sup>/s (assuming 1.0 to 1.2 litre/second/hectare). A capacity of 13,0 m<sup>3</sup>/s is just sufficient to irrigate the entire Upper part. However, there will be no water available anymore for the lower part. This means that the water flow for the lower part that will be channelled by the Lower Main Channel depends on the water storage in the Tbilisi Sea. The Tbilisi Sea plays an important role in the water availability during the peak season for the southern part of the command area. There are questions whether the water storage of this lake is functioning well. In our view the ESIA should have been used to study the role of the Tbilisi Sea for the water availability as it is assumed to have an important role in securing

water delivery of the southern part of the command area<sup>4</sup>. The NCEA noticed that the ESIA (August 2018) contains a lot of information on the functioning of the Tbilisi Sea. For example, it gives as current maximum storage capacity 217.96 Mm<sup>3</sup> and a minimum storage for drinking water pumping at 176.46 Mm<sup>3</sup>. This leaves an effective water volume that can be used at about 41 Mm<sup>3</sup>. The ESIA does not describe that the GWP will allow a significant use of this volume for irrigation during peak demand. The ESIA further gives a system water balance for each Alternative. However, the system water balance is based on several assumptions and, although probably good measures when implemented, these cannot be guaranteed at the start of the project.

- For alternative 3, the ESIA gives a map showing which water application method is expected to be bought by the farmers. In the low pressure zone (no area given in ha) the uniformity of water application is due to be low because of the relatively high variation of pressure along a filed pipe. As a result, the anticipated application efficiencies cannot be reached. In other areas, high pressure systems (centre pivot, etc.) are proposed. For these systems additional pumping is needed. The ESIA (August 2018) describes that >15MW is needed for pumping at large farms and between 4000 and 5000 (disposable) petrol pumps at small farms. The ESIA does not discuss if the 15MW can be supplied via the existing grid and how this relate to the business case of the agricultural production.
- The ESIA assumes that the irrigated area of Alternative 3 can be attained due to the introduction of “modern” application methods like drip and sprinkler. The ESIA, however, also classifies the area as “very windy” while most soils are heavy. Under these windy conditions, a high percentage (20 to 30%) of the required fine spray of the sprinklers evaporates before it reaches the soil. The actual efficiency thus will be much lower than assumed. The introduction of “modern” laser-levelled basins or furrows could have a higher efficiency at lower energy cost.
- To increase the water availability, in the ESIA it is proposed to construct small reservoirs on the private agricultural land so farmers can irrigate if no water is delivered by the system. In this case, pressure in the delivery pipeline will be diminished and additional pumping is required. These reservoirs have no influence on the project water requirements, while the need for additional pumping (investment and energy) has not been discussed in the ESIA.
- As stated in the ESIA hydro power has a priority above irrigation. This means that in period of scarcity of electricity hydro power installations in the Zemo-Samgori irrigation scheme would still function and water for irrigation will be lost. Part of these winter flows could be used to recharge the groundwater table. However, the ESIA does not consider this possibility. Recharge of the groundwater table during winter was part of the Soviet system operation. It may result in a considerable amount of stored water.
- Cropping pattern – The ESIA give two tables for the percentage distribution of crops in areas where either small farms or large farms prevail. It does not show the area cropped (in ha) with each crop nor the planting/seeding date, and the growth period, of each crop. The above tables give a weighted crop coefficient (Kc) for the two farm-size areas.

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<sup>4</sup> In the ESIA report is stated that in the Soviet period the irrigation scheme was also able to irrigate the proposed command area. However, during the Soviet period, water management of the scheme included the recharge of the groundwater table during winter and using this water through capillary rise during the summer. Nowadays this water management method can be simulated using the depleted fraction of water instead of the differential soil moisture as in the ESIA. If e.g. a groundwater level fluctuation of 1m is allowed, and a drainable pore space of 15% is assumed, this would result in 39 Mm<sup>3</sup> water becoming available for crop growth. Further, the Upper Main Canal (UMC) was designed for a water requirement of 0.6 to 0.7 l/s/ha during the Soviet period, where the ESIA uses 1.2 to 1.4 l/s/ha. However, the ESIA does not convince that the UMC can convey this extra water.

However, it continues to use the same value of 1.2 Kc for secondary units with both farm sizes. The ESIA does not discuss these higher Kc – values. Using a higher value for an irrigation unit is not according to international practise.

- Ecological flow; The ESIA report claims that the requirements of the Zemo–Zamgori scheme and of other water users downstream of Paldo diversion has been taken into account in the water balance spread sheet. The ESIA (August, 2018) list all these water users and their requirements. However, the ecological flow is not determined on the basis of an ecological assessment but the old Russian practice of 10% (of what?) is used as a sufficient criterion. This assessment is inadequate and does need meet good practice standards.

The NCEA recommends concerning the water balance to provide evidence whether the assumptions are realistic and are applicable within the project period ensuring sustained water availability during peak season (at least 4 out of 5 years) and till the end of the production season.

#### **Alternatives for water availability, distribution and use**

Considering the possible shortage of water and therefore the likelihood that not all 25000 hectares can be irrigated, the NCEA suggested in its 2<sup>nd</sup> scoping advice to use the ESIA in the process of making (political) choices. Therefore, the NCEA proposed to elaborate and compare four alternatives for water distribution<sup>5</sup>.

- As a first step (before applying the 4 alternatives), the NCEA recommended to reduce the command area by excluding two of areas that are less suitable areas for irrigation (i) the areas neighbouring the capital of Tbilisi where land conversion is planned or expected in the next 20 years, and (ii) areas with permeable karst soils. The recommendation on land conversion due to urban growth of Tbilisi has not been followed. In the ESIA report is stated that karst soils do not exist in this irrigation scheme but the ESIA does not provide a soil map of the irrigation scheme to justify this statement. In the ESIA (August 2018) it is mentioned that Tbilisi Land Use Master Plan is under Governmental approval. This plan and other developments (i.e. military area) will reduce the total irrigable area. It is recommended to use these plans and developments to present a map showing the maximum irrigable area.
- In the ESIA is stated that GA asked all farmers whether they opt for land with or without irrigation. Of course, all farmers would like to have irrigation to produce more and more valuable crops and/or obtain more financial compensation when selling their land. Therefore, GA they did not want to apply the step described above nor to assess the alternative with command areas for small landowners only. This position would be understandable assuming there is sufficient water. However, the NCEA assumes that there is insufficient water available for the entire command area the reduction of the command area (the first step) and the use of the four alternatives would have provided the opportunity to present to the GA more sustainable rehabilitation options.
- Three out of four alternatives were elaborated but, in such a way that a comparison becomes difficult. In Alternative 1 the irrigation system included an irrigation system up to the field level (quaternary system) whilst in Alternative 3 farmers are to invest in “modern techniques” (such as sprinkler and drip irrigation) so that rehabilitation stops

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<sup>5</sup> The following four alternatives to distribute the water have been recommended to elaborate and compare. Alternative 1: Whole command area under irrigation. Alternative 2: Optimising the water efficiency. Alternative 3: Optimising the investment cost per hectare. Alternative 4: Focus on small farmers.

after the tertiary level. This automatically means that Alternative 1 is costlier (for the project) than Alternative 3 (which is much costlier for the farmers). Alternative 4 focussing on small farmers has not been elaborated. In the ESIA (August 2018) the Alternative 4 is only discussed as a non-logical alternative because the production of vegetables during dry season is not economical. A water balance is not presented.

The NCEA concludes that the approach recommended by the NCEA to develop four alternatives was only partly followed.

### **Water management**

An essential part of any irrigation scheme is: how will it be managed (economically, socially, environmentally, technically, legally and financially). This part was absent in the ESIA report (March 2018). The supplemental information to the ESIA report (May, 2018) provided valuable insight in the proposed organisational set-up of the management of the irrigation scheme. In the proposed set-up the GoG remains responsible for the main system (UMC, LMC, Tbilisi Sea and hydropower systems), whilst the Water Users Organisation (WUO) will manage the scheme at the secondary level supported by farmer groups at the tertiary and quaternary units. This seems a logical management set-up of the scheme. Operation and maintenance of the main system is complex and requires high technical skills and a continuing decision making process to deliver water to the different users (agriculture, hydropower, safety of houses around the lake, etc.) and ensuring equal water distribution over the system. Within a secondary command area, the distribution of water and the operations and maintenance (O&M) of the canals is relatively easy and to reduce cost and enhance equal water distribution inclusion of water users is a general practice.

However, although the proposed set-up seems logical it is unclear on how this situation can be achieved. Experiences all over the world have shown that establishing such a management set-up takes a lot of time because all farmers have to agree on water distribution methods, on cropping patterns, on financing the O&M (i.e. level of water taxes), on distribution of tasks, on internal agreements within the WUO and the farmer's groups, etc. In general, the success of an irrigation scheme (meaning a sharp increase of cash crops) depends both on a properly established management system and on securing water delivery during peak season and till the end of the season in at least 4 out of 5 years. Optimally, such an establishment process of a new irrigation management organisation includes all kinds of trainings preceding the physical implementation. Sub-optimal is doing this in parallel with the physical implementation. In the ESIA (August 2018) no additional information was provided on these management issues. Therefore, NCEA recommended to elaborate a phased approach in which the development of the physical works and the management system is developed area by area. The ESIA should have identified the criteria for selection of these areas.

### **IFC Performance Standards (IFC PS)**

In the ESIA (August 2018), a section 3.3 has been included analysing the applicability of the IFC PS and concludes that IFC PS 1 –4, 6 and 8 are triggered, which is now in line with the NCEA advice. Regarding the potential triggering of PS 5 it is now confirmed that there is no need for land acquisition which could lead to involuntarily resettlement and/or economic displacement. Where needed right of way for privately owned land needed during construction and maintenance will be negotiated and agreed as part of a servitude contract.

However, there is still some ambiguity in the ESIA as it states that resettlement of population is expected to be minimal. This should be removed. Furthermore, the ESIA confirms that there are no indigenous peoples in the project area. Shortcomings and recommendations on the IFC PSs triggered are included in Section 3.2.

The NCEA concludes that the ESIA (August 2018) does not provide sufficient information for informed decision-making by RVO. The main shortcomings have been discussed in this chapter. All shortcomings are described in chapter 3 of this advice.

### 3. Detailed findings

In this chapter the review findings are presented by making use of two tables. The first one (3.1) presents the detailed findings of the review of the ESIA report. The second table (3.2) presents the NCEAs findings on how the IFC performance standards have been addressed.

#### 3.1 Detailed findings of the review of the ESIA report of August 2018

In column 1 the recommendations in the advice of the NCEA dd. 18 October 2016 are presented (see column 1). Column 2 provides an overview on a three-point scale whether the recommendations have been followed in the ESIA of May 2018 and August 2018: Yes - completely followed; Partly - followed or No - not followed. In column 3 the NCEA explains to what extent the recommendation has been followed, if partly followed it is suggested what still needs to be done, if not followed one can read in the first column what needs to be done.

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
	<b>Policy, legal &amp; institutional framework</b>		
7	Elaborate on policies and describe how they influence the proposed project	Yes	The influence of the listed policies on the proposed project has been described.
8	Project components/activities + alternatives should be checked on consistency with current plans and if project activities are conflicting with current plans & policies, how this will be resolved	Partly	Consistency with the Tbilisi Land Use Master Plan has not been checked and this needs to be done. A map presenting the areas under this plan or other plans have not been presented but the plan is now mentioned in the ESIA
	<b>Project description</b>		
8	Describe the study areas and indicate important elements on maps	Yes	The ESIA provides an adequate description of the study area it is supported by many maps.
8	Schematically present the main element of the irrigation system	Partly	<p>A schematic design of the whole canal system and related structures indicating dimensions and design capacity has not been found (main channels, secondary, tertiary in the first set of documents that were presented. Such an overview makes it easy to assess whether canals have sufficient capacity and what type of water distribution system (or systems) is possible. It presents also the bottlenecks in the system (e.g. the non-functioning tunnel in the Lilo Martkopi Main Canal) so that rehabilitation measures could be taken (or not if these are not possible or too expensive). The supplemental information to the ESIA (May 2018) includes the profiles for the main canals and its cross sections and all the designs for the rehabilitation of the system. It partly presents calculations on the capacity of the main canals (unfortunately the excel file with calculation of the LMC is not working). It shows for example the capacity at the intake being between 11,5 and 13,0 m<sup>3</sup>/s. The capacity of the UMC is restricted because just after the intake the canal passes a tunnel in the mountain with a limited capacity. 13 m<sup>3</sup>/s is not sufficient to irrigate the whole command area in peak season which is between 25 and 30m<sup>3</sup>/s. The water flow in the LMC depends therefore on the water storage in the Tbilisi lake.</p> <p>The re-use of irrigation water is now presented in the ESIA. Particularly in a hilly area as the project area this is a normal practice if the water is still of good quality. However how this affects the water availability over time in sections of the LMC is not presented.</p>
8	Assess the maximum possible	No	This recommendation has not been followed. The total command area of 25.837 hectares is the base case in the ESIA.

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
	irrigated area and present on a map		The impact of the extension of Tbilisi (urbanisation, other functions) and areas with severe infiltration rates are not used to reduce the command area.
9	Demarcate the project area on a map	Yes	The project area is presented and includes the 25.837 hectare command area.
	<b>Problem analysis, vision &amp; objectives</b>		
9	Start with Assessment of problems	Partly	<p>An assessment of the possible problems, is only partly done (page 11 of the ESIA). A more elaborate problem analysis is provided but in cases it is mentioned that the problems are in other documents which have not been presented to the NCEA. In particular, the issue of sustainable irrigation management of the system (meaning organisational, institutional and financial) is mentioned only in a very limited way whilst this is great importance for the success of the project.</p> <p>A more elaborate problem analysis would provide a better understanding on the choice of the Alternatives and on the assessment itself. Possible problems are:</p> <ul style="list-style-type: none"> <li>• Capacity of main and secondary canals</li> <li>• Leakage from the Tbilisi Sea</li> <li>• Urbanisation of the command area</li> <li>• Steep slopes, and permeable areas</li> <li>• Water distributions system</li> <li>• Operation and Maintenance</li> <li>• Management organisation and legal status</li> <li>• Status of the of the wind breaks</li> <li>• Farmers experience with agriculture and related irrigation methods</li> <li>• Priority of water use (in relation to drinking water and hydro power)</li> <li>• Ecological flow after the intake / other water users down stream</li> <li>• Pollution of the irrigation water (by neighbouring industries, villages)</li> <li>• Institutional framework (this is mentioned but very high level leaving no possible direction for an improved management system).</li> </ul>
10	Assessment of the state of the infrastructure	Partly	The ESIA provides an extensive assessment on the required interventions in the system. However due to the lack of a schematic overview of the system, it is difficult to understand the impact of the proposed measures.
10	Assessment of state of windbreaks	No	No map was provided on the state of wind breaks.

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
10	Assessment of the future management structure	No	In the first series of documents no policy is given on the future management system. The second series of documents contained a proposal for the set-up of the irrigation management of the scheme. The documentation started with a clear overview of the history of the scheme starting in the Soviet period the type of management at that period and the decline of the scheme during the so-called dark years. According the newly proposed set-up the GoA will continue to perform the management of the main system. From the intake of the secondary canal the WOU will take over the management supported by farmer's groups at the quarterly level and the tertiary level. As already indicated above, it is not clear how the responsibilities are arranged, how the farmer's groups are built up, how water distribution conflicts will be resolved, how these groups are involved in decision making on the water distribution, what process is developed to do so, how finances are arranged, if training is foreseen etc. Very important is to present a business case and financing plan that shows that WOU (and its members) can finance the O&M and that farmers have a sound business case to invest. For the latter the WOU should have sufficient size in hectares.
11	Indicate command area over 10 and 20 years	No	An overview of the command area in 10 and 20 years is missing.
11	Water demand	Partly	Extensive data have been provided on the potential evapotranspiration. No cropping pattern in terms of area (in ha) planted, plant date and growth length have been provided. Hence, the calculation of crop water requirements (per month) cannot be checked. It seems that no variation in the (forecasted) cropping pattern is studied. In the water balance model a (high) $K_c$ value of 1.2 is used for all cropping patterns on either small or large farms. The reported $K_c$ values and irrigation efficiencies differ from recommended values in literature. It needs to be justified why these different values are used.
12	Assessment of the drinking water supply needs for Tbilisi	Partly	The supply of drinking water to Tbilisi is expected to grow. This growth, and its effect on irrigation water availability is not evaluated. As a result, irrigation may not be allowed to draw the Tbilisi Sea reservoir water level down to dead storage. This probably results to a reduction of usable storage in Tbilisi Sea by about 25 Mm <sup>3</sup> . The possible increase in the use of drinking water from the Tbilisi Sea and the consequences for the water availability for irrigation of the southern part of the irrigation scheme need to be described. The ESIA contains now a large part on the Tbilisi Sea which provides a lot of valuable insight in the functioning of this lake. The ESIA shows that the current useable storage capacity is restricted to 41.5 Mm <sup>3</sup> of which most seems to be used for drinking water by GWP. Further, the water balance is made on several assumptions which at the moment cannot be valued as realistic within the project time frame.
12	Prepare water balance	Partly	The effect of irrigation rehabilitation on the water balance has been documented. It is not shown how the design capacity of the upper main canal, and management of the Tbilisi sea is limiting the foreseen flow volumes.

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
12	Assessment of the discharge of polluted water	Partly	This assessment was provided at a qualitative and abstract level. It should provide an overview of (1) the current discharge of (polluted) (industrial) waste water and (2) the quality of the drainage water now and expected after rehabilitation. The ESIA relates the drainage discharge directly to the irrigation efficiency. In reality there is an indirect relation because the irrigation efficiency contains non-water balance related components (like potential ET and effective precipitation) while part of the groundwater could be reused through capillary rise.
12	Use EU guidelines on water quality	Partly	Georgian standards on water quality are used instead of EU standards. It is recommended to include one table in which Georgian, WHB EHS Guidelines (see IFC PS review) and EU standards are presented.
13	Intelligent guess lori environmental flow	Partly	The ESIA indicates that the 10% of annual average river flow downstream of the Paldo diversion is based on a practice inherited from the Soviet era. No scientific evidence is presented that this 10 % is sufficient to sustain the biodiversity and ecosystem services. Furthermore, this 10% annual average discharge can be used by the Zemo-Samgori irrigation scheme further down the lori river. All water users in the lori basin downstream of Paldo are listed. In particular, the environmental impact on flora and fauna during dry months should be assessed. A forecast of future development of these requirements is made.
13	Required Gov. structure to ensure environmental flow	Yes	Ministry of Environment Protection and Agriculture is responsible. However, important is how this 10 % annual discharge is being effected and monitored so that at least this threshold is maintained.
	Reference to vision of GA of the rehabilitation and the time frame	Yes	The ESIA describes the policy of the GA towards agricultural growth through different interventions of which the (re)use of irrigation is a very important one.
	<b>Description of the present environment</b>		
13	How to deal with different land ownerships	Partly	The ESIA clearly presents the different types of landownership. Extensive research is made to address the landownership. Small landholdings are mostly in the villages in particular in arable fields around houses. It is clearly indicated that the repartition of water will be according the size of the landownership and technical water distribution structures are presented at the different levels of the irrigation system. However, since the ESIA presents only generally the proposed management system it is not clear how in practice the water distribution will be organised at field level in particular in areas where not all land owners are known and how the farmers will be organised, trained and supported to distribute the water and irrigate the different types of crops.
13	Address landownership	Partly	The landownership is addressed quite extensively. Although the project put a lot of effort in finding the landowners, still 40% of the landowners were not found and still need to be found. See remark on PS5 in table 3.2
13	Investment capacity for small-medium-large	Partly	This assessment was provided at a qualitative and abstract level. In the social assessment it was mentioned that investment in new irrigation techniques is more difficult for small landowners. Even if the investment capacity is

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
			sufficient, farmers may wait with investment till it is sure the water availability is ensured (4 out of 5 years) and distribution agreements with the other farmers at their level is formalised.
14	Assessment of current situation including land use, land ownership, socio-economic position	Yes	<i>See 2 lines above</i>
14	Listing of other possible water uses in competition of the irrigation scheme	Partly	This assessment was provided at a qualitative and abstract level. However, its implications for the water balance are important. Therefore, this listing and quantitative assessment will be very important for the calculation of the possible command area. As this is difficult to assess, this is another reason for a careful phase wise approach to the rehabilitation.
15	Indicate loss of command area to Tbilisi	No	<i>See above</i>
15	List increasing power demand and consequences on water availability	No	As stated in the ESIA hydro power has a priority above irrigation. This means that in period of scarcity of electricity hydro power installations in the Zemo-Samgori Irrigation would still function and water for irrigation will be lost. Part of these winter flows could be used to recharge the groundwater table. However, the ESIA does not consider this possibility. Recharge of the groundwater table during winter was part of the Soviet system operation. It may result in a considerable amount of stored water.
15	List / map existing pollution by industries, households	No	<i>See above.</i>
15	List other projects	Yes	The other new irrigation scheme down- stream from the Iori offtake is mentioned. Its consequences for the water balance are described. It is clear whether other projects are in the area.
15	Water balance	Partly	The ESIA is not convincing on the possibility to convey the required irrigation water into the foreseen command area in particular for the command area of the LMC.
15	Impact of direct connection between upper and lower canal	Yes	The impact of this connection has been included in the report. However, it is not clear nor justified why is chosen for a pipe with a capacity of 1,1 m <sup>3</sup> /s only. Also there is need for a diversion structure.
16	Present expected cropping patterns per region	Partly	A percentage distribution of crops has been given for two sorts of irrigated areas: where either small or large farms prevail. A percentage distribution of crops is given for these two areas. However, no information is given on the area in ha to which these two sorts of areas apply. Also, no cropped area (in ha) and planting date and growth duration is given. The report does not try to reduce the irrigation water requirement by changing the anticipated cropping pattern. A water requirement of 1.2 to 1.4 l/s/ha is on the high side.
16	Describe sociological setting	Yes	The ESIA provides sufficient information on the sociological setting.
16	Describe development policy of GA	Yes	The ESIA described the policy of the GoA to increase agricultural production in a short way but clear enough. Also the

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
			legal and institutional framework has been clearly described.
16	Market analysis	No	This is not part of the ESIA but a separate study
	<b>Development, comparison and selection of alternatives</b>		
17	Assess feasibility of alternatives to increase water availability	No	In alternative 2, small land holdings in urban areas would not receive irrigation water. This means that relatively more large farms are irrigated, having a cropping pattern with lower average K <sub>c</sub> value. This means that more land can be irrigated with the same project water supply. Hence, the irrigated area would be greater than the 17800 ha of alternative 1.
18	Use of 4 alternatives	Partly	<p>Alternatives 1–3 were elaborated. However, as mentioned above, the comparison of the Alternatives is difficult. In Alternative 1 (whole command area, but 70 % of each landholding) the irrigation system is included up to the field level (quaternary system) whilst in Alternative 3 farmers (whole command area, 100 % of each landholding) are to invest in “modern techniques” (such as sprinkler and drip irrigation) so that rehabilitation stops after the tertiary level. This automatically means that Alternative 1 is costlier (for the project) than Alternative 3 (which is much costlier for the farmers.).</p> <p>A suitable filtering system should be included at the inlet of all low pressure pipes. Further, it is recommended that farmers, not willing to invest in drip or sprinkler, can use modern surface irrigation technology like (flexible) gated pipe. This in particular, because the ESIA mentions that farmers will not invest in drip and sprinkler if the irrigation water supply is not reliable.</p> <p>As mentioned above, in Alternative 2 (focusing on cost effectiveness) a majority of the small farmers were excluded. This would reduce the irrigation water requirement per unit irrigated area.</p> <p>Focusing on small farmers (the proposed Alternative 4) was not used in the ESIA. It has not been justified why this alternative was rejected. The idea was/is that those small farmers have house plots that may easily be transferred into high value crops (mostly vegetables). The costs for the rehabilitation would be relatively small (only the canals towards these 5 or 6 areas) and the profits relatively high. This alternative would benefit a lot of households, at relatively low cost but at relatively high profits. The latter because the focus of the household plots would be on high value crops whilst the large landowners would focus more on crops such as wheat. The ESIA discusses Alternative 4 shortly to be discarded because of overlap with Alternative 3. The NCEA is of the opinion that the four alternatives as suggested in our advice should be elaborated in such a way that a comparison between the pros and cons can be made.</p>

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
19	Assess impact of wind breaks	Partly	<i>See above</i>
22	Assess alternatives with social – economic criteria	Partly	In alternative 3 all kinds of measures are proposed to increase the willingness to invest. It is logical to have similar measures in all 3 alternatives.
	<b>Impact assessment of the alternatives and mitigation measures</b>		
23	Assess the environmental impacts of the alternatives, amongst other water logging	Partly	For each of the three alternatives an assessment is made of the environmental impacts for the construction and the operation and maintenance phase. With the description of impacts of each alternative, the impact is compared where relevant to the other two alternatives. The impacts of rehabilitation are in general low and that is also the conclusions of this ESIA. The effect of the non-consumed part of the supplied irrigation water on the groundwater table in the irrigated area has not been discussed. The effect of the discharge of drainage to downstream areas has not been quantified (in terms of volume and quality) as a function of the irrigation efficiency. As mentioned before, the ESIA relates the drainage discharge directly to the irrigation efficiency while it should be related to the depleted fraction. The ESIA does not discuss the environmental impact of energy use for pumping. High value crops require special produce or techniques against diseases and use fertiliser. In the ESIA an extensive lists of possible mitigating measures is provided. It is however not clear if there are guarantees that these will be applied.
23	Assess socio-economic impacts of the alternatives and mitigating measures	Yes	Socio-economic factors have been taken into account and the mitigation measures are adequately described
24	<b>Cumulative impacts</b>		
24	Describing other projects in the area and the joint cumulative impact of the proposed and other projects	Yes	Other projects have been described in the ESIA.
24	<b>Environmental and Social management plan</b>		
24	Focus on measures to mitigate adverse effects and risks (compliance with national law & regulations + IFC Standards	Yes	The ESMP will have to be further developed. This will also depend on the alternative chosen.

2 <sup>nd</sup> Advice on the Scoping Report by NCEA – 21 Oct. 2016		Addressed in ESIA	Review findings of the ESIA
Page	Recommendation		Comments
24	<b>Consultation and disclosure</b>		
	Consultation of stakeholders (all community members) Describing the process and how to deal with expectations	Partly	A thorough consultation seems to have been conducted, especially towards the implications for livelihood modifications and implications for farmers, households and other vulnerable stakeholders (8.6 Social impacts p.288–320) and it has been described how the results have been translated in the design / selection of alternatives. However, in the ESIA they talk about some communities impacted and no specific information is provided but still needs to be provided.

## 3.2 Detailed review of the findings of the IFC performance standards

### **Screening conclusion in the NCEA advice (October, 2016)**

Based on the screening the following PSs are triggered: 1,2,3,4, 6 and potentially 5 and 8. For further details on the substantiation of the PSs triggered see the attached assessment. Concerning PS5 and PS8: completing the census will provide an overview of land ownership. The final design of the project will identify the need for land acquisition and in combination with the understanding of land ownership establish the need for economic displacement and/or resettlement. Regarding PS8 a further review is needed based on local data whether cultural heritage sites are present in the project area. PS7: the presence of IPs was checked using [www.landmark.org](http://www.landmark.org). No IPs are present in the project area of influence. This conclusion is justified in the table presented below.

### **ESIA of August 2018 review conclusion**

In the ESIA of August 2018, a section 3.3 has been included analysing the applicability of the IFC PS and concludes that IFC PS 1 –4, 6 and 8 are triggered, which is now in line with the NCEA advice. Regarding the potential triggering of PS 5 it is now confirmed that there is no need for land acquisition which could lead to involuntarily resettlement and/or economic displacement. Where needed right of way for privately owned land needed during construction and maintenance will be negotiated and agreed as part of a servitude contract. However, there is still some ambiguity in the ESIA as it states that resettlement of population is expected to be minimal. This should be removed. Furthermore, the ESIA confirms that there are no indigenous peoples in the project area.

Remaining shortcomings based on the review of the ESIA against the IFC PS is presented below and where needed recommendations are given<sup>6</sup>.

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<sup>6</sup> (Based on FMO & Steward Redqueen Environmental, Social and Governance (ESG) toolkit, the IFC online course and webinar, and other sources) (See also: <http://www.ifc.org/performancestandards>).

Performance Standards – brief explanation or requirements	Addressed in ESIA	Review findings of the IFC–PS in the ESIA report
PS1: Assessment and Management of Environmental and Social Risks and Impacts		
<p>Triggered</p> <ul style="list-style-type: none"> <li>• Anticipating a regulatory change in Georgia which will make an ESIA mandatory, but certainly as part of the RVO requirements to finance the project.</li> <li>• Regarding the management of the E&amp;S mitigation measures forthcoming from the ESIA (= ESMP) a competent organisational structure should be put in place, which is not a standard ESIA item.</li> <li>• Will RVO require the development of an ESMS as per PS1 requirements or merely an organisation that can execute the ESMP? For guidance see: <a href="http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_handbook_esms-general">http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_handbook_esms-general</a></li> <li>• Stakeholders are named in the scoping document and these should be included in the consultation process. A stakeholder engagement plan for the ESIA, construction and operational phase, including farmers and affected communities should be developed. The foundations could be laid as part of the ESIA, but it will have to continue into the next phases of the project. This will include ongoing external communications and a grievance mechanism, especially if there are affected communities. These should be identified during the ESIA process.</li> </ul>	Yes	<p>In the ESIA of August 2018 its contents and approach was updated considering the applicable IFC PS: .</p> <ul style="list-style-type: none"> <li>• The ESIA now does includes an outline for an ESMS as per PS 1 requirements including a proposed E&amp;S organisational structure and monitoring and review for the implementation of the project. It describes the responsibilities for GA as Executing Agency, need for a Supervision Consultant to be hired by GA and what plans the Construction Contractor should develop.</li> <li>• The project organisation will include a skilled Community Liaison Officer and who will be responsible for ongoing stakeholder engagement. (Consultations during ESIA were done by Consultant and facilitated by GA staff). In Annex 2 a Stakeholder Engagement Plan (SEP), including a Grievance Redress, is included. The SEP and grievance redress process was included and therefore not reviewed.</li> <li>• Emergency response plan: the need of a plan for the operational phase is not assessed: identification of areas where accidents and emergency situations may occur, including potentially impacted communities (see PS4).</li> </ul> <p>Recommendation: Based on the ESMS assessment in the ESIA of August 2018 an ESMS should be developed by competent E&amp;S staff and GA management oversight. Further specification of stakeholders and related impacts, specifically the identified social impacts should be included in further defining the SEP for the lifetime of the project. As part of the CSR review completed by RVO.nl the SEP and grievance redress process should be reviewed against the requirements of PS 1 and PS 4.</p>
PS 2: Labour and Working Conditions		
<p>Triggered</p> <ul style="list-style-type: none"> <li>• The scoping document mentions GA staff involved in the project and there could be potentially further employment opportunities. <i>The role of the</i></li> </ul>	Partly	<ul style="list-style-type: none"> <li>• Triggered in ESIA of August 2018 in section 3.3 with the need to develop a HR Policy, Occupational H&amp;S Clauses for contracts with constructions companies, but not further assessed as part of the ESMS as indicated or the ESMP These items and the labour conditions of workers involved in the project will have to be assessed in line with PS requirements for GA</li> </ul>

Performance Standards – brief explanation or requirements	Addressed in ESIA	Review findings of the IFC–PS in the ESIA report
<p><i>GA staff is to enhance the public entity's capability to manage, operate and maintain the Zemo–Samgori irrigation system in a sustainable manner, on subjects related to administrative and financial management, billing and fee collection, irrigation service provision, assets operation and maintenance, customer relations management, etc.</i> In addition there could be contractors in the rehabilitation works and third party workers involved. This will have to be assessed and workers conditions and management of worker relationship of GA will have to be reviewed. This will not be done as part of the ESIA. Policies and procedures in line with PS2 should be in place when the rehabilitation starts. This should also include a grievance mechanism for workers and contractors.</p> <ul style="list-style-type: none"> <li>• Georgia has ratified the four fundamental ILO conventions and these should be reflected in the Labour policies and procedures. <a href="http://www.ilo.org/dyn/normlex/en/f?p=NORML:EXPUB:10011:0::NO::P10011_DISPLAY_BY,P10011_CONVENTION_TYPE_CODE:1,F">http://www.ilo.org/dyn/normlex/en/f?p=NORML:EXPUB:10011:0::NO::P10011_DISPLAY_BY,P10011_CONVENTION_TYPE_CODE:1,F</a></li> <li>• Although research is limited, there is evidence that children in Georgia are engaged in child labor in agriculture. <a href="https://www.dol.gov/agencies/ilab/resources/reports/child-labor/georgia">https://www.dol.gov/agencies/ilab/resources/reports/child-labor/georgia</a></li> <li>• Special attention should be given to the skills and competencies in implementing the ESMP and maintaining community relations, including addressing grievances.</li> </ul>		<p>staff, hiring of consultant for overseeing E&amp;S during further design, construction and implementation and workers of construction company.</p> <ul style="list-style-type: none"> <li>• Relevant E&amp;S training is mentioned in the ESMS development and ESMP.</li> <li>• Policies and procedures in line with PS2 should be in place when the rehabilitation starts. Reportedly, a grievance mechanism for GA staff exists but it is unclear if this extends to, third party workers and construction workers.</li> <li>• No workers camps needed due to close proximity of Tblisi. The ESIA mentions that in case workers camps are needed they need to meet national regulations and IFC/EBRD Guidelines for Workers' Accommodation.</li> </ul> <p>Recommendation: HR Policy should be developed if not available implemented reference ILO core norms and where applicable high risk of child labour or forced labour, safety issues in the primary supply chain. In addition, contracts with construction companies should include Occupational Health and Safety Clauses in line with the national regulations and PS 2 requirements.</p>
PS 3: Resource Efficiency and Pollution Prevention		

Performance Standards – brief explanation or requirements	Addressed in ESIA	Review findings of the IFC–PS in the ESIA report
<p>Triggered</p> <ul style="list-style-type: none"> <li>The availability of water: quantity and quality (see WBG EHS Guidelines for Annual Crop Production, see WBG EHS Guidelines for Annual Crop Production, see table1) will be addressed in the ESIA, including resource efficiency measures.</li> <li>A high level review of the WRI Aqueduct water risk filter showed a medium to high overall water risk: <a href="http://www.wri.org/applications/maps/aqueduct-atlas/#x=45.61&amp;y=41.79&amp;s=ws!20!28!c&amp;t=water risk&amp;w=def&amp;g=0&amp;i=BWS-16!WSV-4!SV-2!HFO-4!DRO-4!STOR-8!GW-8!WRI-4!ECOS-2!MC-4!WCG-8!ECOV-2!&amp;tr=ind-1!prj-1&amp;l=9&amp;b=terrain&amp;m=group">http://www.wri.org/applications/maps/aqueduct-atlas/#x=45.61&amp;y=41.79&amp;s=ws!20!28!c&amp;t=water risk&amp;w=def&amp;g=0&amp;i=BWS-16!WSV-4!SV-2!HFO-4!DRO-4!STOR-8!GW-8!WRI-4!ECOS-2!MC-4!WCG-8!ECOV-2!&amp;tr=ind-1!prj-1&amp;l=9&amp;b=terrain&amp;m=group</a> This (high level) information expanded with local/regional data should be taken into account when assessing water availability, floods, water stress, etc. for the project, the ecology and other users now and in the future.</li> <li>What about the pump houses: what energy source will be used? The impact of energy source should be assessed and energy efficiency measures should be considered.</li> <li>Please take note of paragraph 17 regarding the use of WHO Class 1a and 1b pesticides which are not allowed based on PS3. This needs to be addressed in the ESIA and alternatives should be included in the ESMP. GA is involved in agricultural (i.e. irrigation) activities that require the use of pesticides by third parties and therefore should promote the use of integrated pest management and integrated vector management approaches through all feasible</li> </ul>	<p>Partly</p>	<ul style="list-style-type: none"> <li>Water availability is addressed in the ESIA of August 2018 and is discussed in chapter 3.1 of this advice.</li> <li>Regarding water quality an assessment was provided at a qualitative and abstract level. It should provide an overview of (1) the current discharge of (polluted) (industrial) waste water and (2) the quality of the drainage water now and expected after rehabilitation. Georgian standards on water quality are used instead of EU standards. It is recommended to include one table in which Georgian, WHB EHS Guidelines (see IFC PS review) and EU standards are presented.</li> <li>It is still no clear what is the proposed treatment of drainage water prior to discharge would be and to what standards and where it will be treated to avoid impacts downstream. This should be included in the ESIA.</li> <li>Pesticides: The ESIA states that only regulated pesticides will be used and no PoPs. The ESIA explains that is difficult to provide an actual list of pesticides used, but that this list will not include WHO 1a and/or 1b chemicals.</li> <li>GAP including Integrated Pest Management is referenced in the ESIA and the ESMP states that this should be promoted, but it will require development of capacity programmes to train farmers which is now included in the ESMP.</li> </ul> <p>Recommendation: Water quality should also be analysed against WBG EHS guideline limits. If there is an impact, measures and monitoring of water quality should be included in the ESMP. Furthermore the treatment of the drainage water should be further explained: where, how and to what standards?</p>

Performance Standards – brief explanation or requirements	Addressed in ESIA	Review findings of the IFC-PS in the ESIA report
means of dissemination of information about these agricultural approaches.		
PS 4: Community Health, Safety and Security		
<p>Triggered</p> <ul style="list-style-type: none"> <li>There most likely will be communities in the project area of influence.</li> <li>Depending on the final design of the project, i.e. final command area an inventory should be made of communities in the project area of influence and the impacts (e.g. increased traffic movements during rehabilitation, ecosystem services, etc.) should be reviewed in the ESIA. Not included in the scoping document.</li> <li>The inventory and level of impact will determine the community engagement programme (see PS1).</li> </ul>	Yes	<p>In the ESIA of August 2018 it is concluded that there will be health and safety risks (dust, noise, road traffic) for local communities due to traffic movements of machinery. This is still generic and no assessment was completed: i.e. where are the communities, do they include vulnerable groups, and to what extent are they impacted to specify which mitigation measures are needed where in line with the ESMP and what kind of consultations and ongoing communications are needed as part of the SEP:</p> <ul style="list-style-type: none"> <li>The ESMP specifies the need for developing a traffic plan, H&amp;S plan, emergency preparedness and response plan, ongoing consultation and communication with communities to address the health and safety risks for communities in general during construction in relation to noise hindrance, traffic movements and emergencies during construction.</li> </ul> <p>Recommendation: Prior to implementation and based on the final design of the project it should be clear in which sectors there are affected communities, whether there are vulnerable groups and what the actual impacts are for which appropriate measures should be defined and implemented as part of the ESMP. Communications on these measures and feedback on the implementation and prevention of nuisance should be part of the communications and ongoing reporting to these affected communities to be included in the SEP.</p>
PS 5: Land Acquisition and Involuntary Resettlement		
<p>Potentially triggered</p> <ul style="list-style-type: none"> <li>Construction of a new reservoir (near canal G25) could impact users of the land needed. In case land acquisition is needed for the reservoir which leads to physical and/or economic displacement a RAP and/or livelihood restoration plan should be developed. To be included in the scoping document: design of the project.</li> <li>Landownership is in the process of being completed and would have to be known in case additional land is needed for the project.</li> </ul>	Yes,	<p>The ESIA of August 2018 states that no land acquisition is needed for the project and therefore there will be no involuntarily resettlement and/or economic displacement. The RAP is no longer included in the ESIA. However, in the ESIA of August 2018, it is still stated that: "Resettlement of population expected to be minimal and in most cases on a temporary basis during the construction work". This is an ambiguous statement in relation to the RoW statement: "<i>Right of Way (Servitude Contract): a compensation and contract shall be agreed through good faith negotiations with the land owners.</i>"</p> <p>Recommendation: Any ambiguity regarding involuntarily resettlement should be removed from the ESIA.</p>
PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		
Triggered	Partly	<ul style="list-style-type: none"> <li>The ESIA confirmed that there are no protected areas in project area of influence.</li> </ul>

Performance Standards – brief explanation or requirements	Addressed in ESIA	Review findings of the IFC–PS in the ESIA report
<ul style="list-style-type: none"> <li>Assessing the (minimum) environmental flow as part of the ESIA and management thereof in the construction/operational phase of the project for which responsibility will have to be assigned and resources put in place. An EFMP (Environmental Flows Management Plan) may have to be developed for this.</li> <li>Drainage and run-off water containing fertilisers and pesticides may impact soil and groundwater in-and outside the project area. This will be covered in the ESIA.</li> <li>A quick screening did not identify modified habitats containing “significant biodiversity value,” natural habitats, critical habitats, legally protected areas, or areas that are internationally recognised for biodiversity in the project area of influence. To be confirmed in the ESIA.</li> </ul>		<ul style="list-style-type: none"> <li>Triggered due to impacts on environmental flow, but this is still not sufficiently addressed in the ESIA of August 2018 (see separate discussion on water availability). <ul style="list-style-type: none"> <li>An impact on fish population due to contamination with agro inputs is an impact on ecosystem services and potentially will have an economic impact on the fishermen. The nature and scale of the impact is still not assessed or substantiated with data. The ESIA states that the Ministry of Environment raised concerns about drainage water and discharges.</li> </ul> </li> <li>The project involves the production of living natural resources i.e. crops and depending on the alternative selected requires a reform of the agricultural production in the area. The impacts of this are described and should be addressed in sustainable manner, but there does not seem to be an elaborated approach for this reform programme included in the ESMP in line with industry specific good management practices and available technologies (other than irrigation technologies).</li> </ul> <p>Recommendation: Include mitigation measures for the fish population and avoid impacts on fishermen based on actual data. Develop a programme with the relevant stakeholders (MoA, WUO, farmers/landowners, etc.) that allows for a reform of the agribusiness sector as part of the project in a sustainable manner and in line with industry specific good management practices and available technologies. This was copied in section 3.3, but not further addressed. This will require capacity development support from international experts and therefore additional funding.</p>
PS 7: Indigenous Peoples		
<p>Not triggered. The <a href="http://www.Landmark.org">www.Landmark.org</a> tool did not identify any IPs in the project area of influence.</p>	Yes	The ESIA of August 2018 confirms that IFC PS 8 is not triggered as there are no IPs in this part of Georgia.
PS 8: Cultural Heritage		
Currently, not known and this should be addressed in the scoping document and if needed in the ESIA.	Yes,	<ul style="list-style-type: none"> <li>In the ESIA of August 2018 PS 8 is triggered and cultural heritage is discussed in the ESIA. A chance find procedure will be developed as mentioned in the ESMP and included in the ESMS.</li> </ul>

## 4. Guidance for ESIA (phase II)

The NCEA has been informed by RVO (dd. 28 August 2018) that the scope of the project proposal to fund the rehabilitation of about 25.000 hectares of the Zemo–Samgori irrigation scheme has been changed. The main reason for this change is, that the necessary availability of water during the peak demand could not be justified by GA.

The NCEA has been informed by RVO that it has been agreed with the Ministry of Agriculture and GA that the scope of the adjusted project will be limited to minimum 8.000 hectares and maximum 12.000 hectares. A new project proposal will be developed and a new ESIA is required.

For the development of this new ESIA (phase II of the project), the NCEA recommends to make use of:

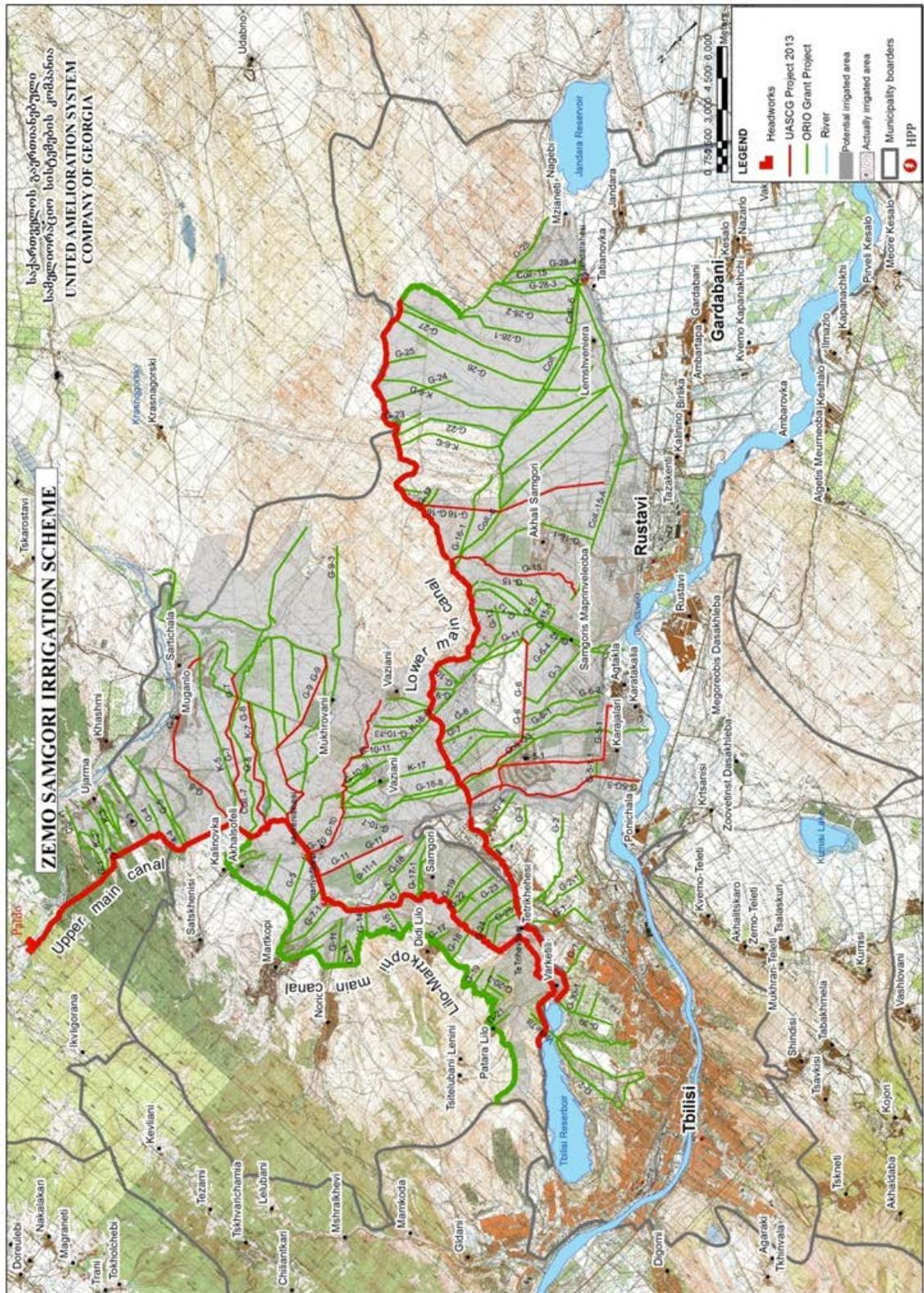
- NCEAs' advisory report, October 2016;
- ESIA report prepared by Eptisa, August 2018;
- NCEAs' advisory review report, October 2018.

It is recommended to read these three reports subsequently as that provides insight in, firstly the guidelines the NCEA has drafted on the content of the ESIA study. Secondly, how these guidelines have been translated in the ESIA report. Thirdly, an advisory review of the quality of the ESIA in which the NCEA identified a large number of shortcomings that still needs to be remedied.

For the new ESIA the NCEA recommends to apply, as far as relevant, for the new and smaller project, the four step approach in the development of alternatives as elaborated in the NCEA's advisory report (October 2016). Most important is to jointly develop with GA a set of criteria at the start of the ESIA process to enable a transparent selection of the areas for rehabilitation.

Another issue that needs to be discussed with GA is the management of the expectations of the people as a large number of people will not be able to benefit from this project.

# Annex 1: Map Zemo-Samgori Irrigation Scheme



## Annex 2: Composition of the working group and project information

### Proposed activity

This project is known as rehabilitation of the Zemo–Samgori irrigation project.

This project aims to rehabilitate the irrigation scheme that was developed in the Soviet period but has deteriorated after 1991. Since a couple of years the Government of Georgia started to invest in the rehabilitation of this scheme. The Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland – RVO) is ready to provide a grant to support the further rehabilitation of this scheme. However, RVO requested to execute an Environmental and Social Impact Assessment that meets international good practice standards. Therefore the IFC performance standards are used as a reference framework and the Netherlands Commission for Environmental Assessment is requested to secure that these standards are met.

A working group of experts of the Commission for Environmental Assessment (the NCEA) has been composed and they have visited the project including a field visit.

**Project number:** 7195

### Progress

- First Advice for ToR for ESIA, submitted April 2016
- Second advice for scoping report for ESIA, submitted 21 October 2016
- Third advisor review report of the ESIA, submitted 8 June 2018

### Composition of the working group of the Commission for EIA

Second advisory report:

- Mr E. Zigterman (Erik) – Expert on Civil engineering of irrigation and water management
- Mr G. Gavardiashvili (Givi) – Resource person on hydrology
- Ms M. Hermans (Maartje) – screening IFC performance standards
- Mr A.J Kolhoff (Arend) – Technical secretary and expert on EIA and environmental issues
- Prof. R. Rabbinge (Rudy)– Chair and expert on agriculture

Third advisory report:

- Mr E. Zigterman (Erik) – Expert on Civil engineering of irrigation and water management
- Prof. M.G. Bos (Rien) – Hydrology and irrigation
- Ms M. Hermans (Maartje) – IFC performance standards
- Dr. A.J Kolhoff (Arend) – Technical secretary and expert on EIA and environmental issues
- Ms T. van Gool (Tanya) – Chair and expert on agriculture

## Annex 3: Photos of the Zemo-Samgori irrigation project

