INTEGRATED SAFEGUARDS DATA SHEET
APPRAISAL STAGE

Report No.: ISDSA12468

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I. BASIC INFORMATION

1. Basic Project Data

Country:	Myanmar	**Project ID:**	P147629
Project Name:	Agricultural Development Support Project (P147629)		
Task Team Leader(s):	Paavo Eliste		
Estimated Appraisal Date:	23-Feb-2015	**Estimated Board Date:**	23-Apr-2015
Managing Unit:	GFADR	**Lending Instrument:**	Investment Project Financing
Sector(s):	Irrigation and drainage (40%), Agricultural extension and research (30%), Crops (30%)		
Theme(s):	Rural services and infrastructure (60%), Other rural development (20%), Climate change (20%)		
Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)?	No		
Financing (In USD Million)			
Total Project Cost:	100.00	Total Bank Financing:	100.00
Financing Gap:	0.00		

Financing Source	Amount
BORROWER/RECIPIENT	0.00
International Development Association (IDA)	100.00
Total	100.00

Environmental Category:	B - Partial Assessment
Is this a Repeater project?	No

2. Project Development Objective(s)

The Project Development Objective is to increase crop yields and cropping intensity in the selected existing irrigation sites in Bago East, Nay Pyi Taw, Mandalay, and Sagaing regions.

3. Project Description

Project Beneficiaries are farm households who have access to irrigated land in selected irrigation schemes in Bago East, Sagaing, Mandalay, and Nay Pyi Taw regions. In addition the project would benefit households in targeted communities who may not have access to irrigated land through participation in extension activities which would cover the whole grow irrigation areas, including non-irrigated lands.

Approach. The project will use phased approach which allows for flexible identification of the number and size of target gravity irrigation perimeters. It is suggested that the project implementation will start with smaller and technically simple irrigation sites while carrying out studies for more complex sites. Local communities will be consulted to seek their inputs and agreement to participate in project activities. The specific boundaries and features of the irrigation schemes within these sites will be determined as an output of the technical feasibility studies which include relevant environmental and social assessment to be prepared during the first year of the project implementation.

Components. The proposed project has four components: (i) Irrigation and Drainage Management (US$78.4 million); (ii) Farm Advisory and Technical Services 17.2 million); (iii) Project Coordination and Management (US$4.4 million); and (iv) Contingent Emergency Response (US$0 million):

Component 1. Irrigation and Drainage Management

This component aims to enhance the more responsive and reliable provision of irrigation and drainage services in the project irrigation sites. The component will involve (i) capacity development of the irrigation management institutions, and (ii) rehabilitation of existing gravity irrigation and drainage infrastructure, which includes improvement of management of selected existing reservoirs and irrigation systems. The project would support the following sub-components:

1.1 Strengthening Irrigation and Drainage Management Institutions. This sub-component will support: (i) expert meetings, training and capacity building of the Irrigation Department and Agricultural Coordination Committees (ACC); (ii) awareness campaigns; (iii) formation and training of water user groups (WUGs); and (iv) development of information and decision support systems on the availability and use of water resources, and irrigation and drainage infrastructure in the country.

1.2 Rehabilitation and Improvement of Irrigation and Drainage Infrastructure. This sub-component will support: (i) technical feasibility studies and designs for the rehabilitation and improvement of selected existing irrigation sites, including preparation of the site specific environmental and social safeguards documents; (ii) rehabilitation and improvement of existing main conveyance, flow control and sediment management systems, access roads, and de-siltation of the project irrigation and drainage sites; (iii) dam safety enhancement measures for dams serving the project irrigation sites as monitoring instrumentation and remedial works; (iv) rehabilitation and improvement of existing on-farm water management infrastructure in project irrigation sites; and (v) carrying out of 2-3 land improvement pilots in the project irrigation sites.

1.3 Improvement of Land Records and Practices. This sub-component will support: (i) renewal of cadastral maps, land records, and land use right certificates in the project irrigation sites; (ii) piloting of new inclusive approaches to land improvement and property valuation according to international best practices; (iii) community awareness campaigns in the project irrigation sites on land rights and

transactions in the land market; and (iv) a study tour for MOAI officials to a countries with advanced land administration systems to inform the carrying out of activities under this sub-component.

Component 2: Farm Advisory and Technical Services

This component seeks to enhance MOAI farm advisory services at target districts which host selected irrigation schemes to improve farmer crop choices and increase farm productivity. The project would support the following sub-components and activities:

2.1 Crop Variety Development and Seed Multiplication. This sub-component will support: (i) carrying out of adaptive trials in the project irrigation sites to evaluate the performance of various crop varieties; (ii) production of breeder and foundation seeds for farmers in the project irrigation sites; (iii) multiplication of registered seeds for farmers in the project irrigation sites; (iv) multiplication of certified seeds for farmers in the project irrigation sites; and (v) provision of technical assistance to strengthen public seed inspection services to ensure the quality of seeds produced under the project.

2.2 Soil Management. This sub-component will support: (i) mapping of soil characteristics in the project irrigation sites and development of fertilizer use recommendations for each of the soil types; (ii) evaluation of the fertilizer recommendations for soils prevailing in the project irrigation sites; (iii) provision of training and technical assistance to MOAI extension staff on soil nutrition and appropriate fertilizer application rates at the farm level; (iv) development of extension materials and provision of training and technical assistance to farmers in the project irrigation sites on improved plant nutrition and soil conservation practices; and (v) strengthening of public fertilizer inspection services to ensure the quality of fertilizers used by farmers under the project.

2.3 Plant protection. The sub-component will support: (i) carrying out of pest surveys in the project irrigation sites; (ii) establishment of mobile units for identifying pests and diseases in the project irrigation sites; (iii) upgrading of MOAI laboratory facilities for the identification of pests and diseases; (iv) provision of training and technical assistance to farmers in the project irrigation sites on crop protection; (v) provision of training and technical assistance to MOAI staff and farmers in the project irrigation sites on IPM techniques; and (vi) review of measures required to comply with sanitary and phytosanitary requirements for Myanmar agricultural exports.

2.4 Extension of Modern Farming Practices. This sub-component will support: (i) carrying out of on-field demonstrations for testing of new crop varieties and extension of farm technologies in the project irrigation sites; (ii) monitoring of the multiplication of certified seeds under sub-component 2.1; (iii) rehabilitation and construction of small village extension education centers for holding farmer training courses under the project; (iv) carrying out of studies on post-harvest practices of crops and analysis of agriculture supply chains; (v) carrying out of pilot activities to demonstrate post-harvest value adding food processing in the project irrigation sites; and (vi) training of farmers in the project irrigation sites on modern farming practices through on-farm demonstrations or farmer field schools and development of related educational materials.

2.5 Farm Mechanization. This sub-component will support: (i) provision of technical assistance and modern farm machinery, equipment and education materials to the MOAI mechanization training center in Meikhtila, Mandalay region to develop modern training methodologies, materials, workshops and vocational training; and (ii) provision of farm machinery, equipment, and other assistance for the operations of MOoAI mechanization service stations in the project regions to

provide services to farmers in the project irrigation sites.

Component 3: Project Coordination and Management

The Project Management Unit will be established, which will be responsible for the overall coordination of the project implementation and fiduciary arrangements.

Component 4: Contingent Emergency Response

The objective of this zero component is to allow a rapid reallocation of funds from other components to provide rapid response support to disaster, emergency and/or catastrophic events as needed.

4. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

The project irrigation sites are located in well-established agricultural production areas in the Nay Pyi Taw, Bago-East, Mandalay, and Sagaing regions. These regions account for about 80 percent of the country's areas equipped with irrigation and drainage infrastructure. The project would target about 8 irrigation sites which cover about 35,000 ha of net irrigable area and which may span over 16 townships. The specific boundaries and features of the irrigation schemes within these sites will be determined as an output of the technical feasibility studies which include relevant environmental and social assessments to be prepared during the project implementation.

The project target regions are also the areas with high rural population densities. While ethnic minorities are known to be present, the vast majority of population in project areas belongs to ethnic Bamar. The project would utilize only surface water resources through, which is being delivered through gravity fed irrigation systems. Water resource used by irrigation schemes of proposed project sites are tributaries of Sittoung river (Sin The and Swa Chaung schemes), Chindwin river (North Yamar scheme) and Ayerwaddy river (Male Nattaung scheme). The project will not construct new dams/reservoirs or alter their height or capacity and will not use groundwater resources, and there are no plans to utilize groundwater resources. There are 230 small to medium dams and associated irrigation schemes on its tributaries and small streams, but the mainstream remains undeveloped. Many of these schemes have been established during colonial times and during 1980s and 1990s. The vast majority of these schemes are in the size of 5,000 to 10,000 ha.

The project sites will be selected through feasibility studies to be completed after the project effectiveness. These feasibility studies will provide information about site-specific social and environmental impacts. The pre-selected four irrigation sites to be confirmed by the feasibility studies have physical characteristics such as bank erosions, sedimentation along main canals, and poor drainage systems. It is assumed that most of the eight irrigation sites to be supported by the project have similar characteristics. In addition, dam seepage and water quality due to mining operation in the catchment area are considered major problem for improving the efficiency in the Male Nattaung irrigation scheme.

5. Environmental and Social Safeguards Specialists

Pamornrat Tansanguanwong (GSURR)

Ruxandra Maria Floroiu (GENDR)

Satoru Ueda (GWADR)

Satoshi Ishihara (GSURR)

6. Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The project is assigned as an environmental category "B" primarily due to its potential environment and social impacts that are assessed to be less adverse and largely confined within the project area of influence. This is because of the rehabilitation nature of the proposed irrigation and dam safety works and limited scale, which will take place mainly within the footprint of existing irrigated systems on established agriculture lands (e.g., typical works on dam body will include repair of slopes and dam crest covers; repair of existing spillways; installation of monitoring equipment; repair of gate devices and provision of infiltration blankets to reduce seepage; and surfacing of access road where necessary). Specifically, the project will finance physical works related to rehabilitation, upgrading and maintenance of main conveyance, flow control and sediment management systems and de-siltation of existing irrigation and drainage infrastructure; rehabilitation of on-farm water management infrastructure and land leveling in selected systems and possible expansion of on-farm irrigation and drainage services to new areas within existing irrigation command systems; and, irrigation site planning and preparation, including pre-feasibility studies for building a pipeline of potential investment projects and full technical feasibility studies for selected sites. The physical rehabilitation of existing infrastructure will not involve significant structural modifications or alter operation (e.g., increase in height of dams or in reservoirs capacity). The envisaged investments are typical to similar small scale agriculture development projects and are not expected to have significant adverse environmental and social impacts. Temporary negative impacts are related to small scale construction activities, which are limited to the rehabilitation and improvement of existing irrigated agriculture infrastructure. The lack of technical information of the specific location of rehabilitation works planned within the selected schemes during preparation requires the preparation of an Environmental and Social Management Framework (ESMF) including a Resettlement Policy Framework (RPF) and an Indigenous Peoples Planning Framework (IPPF). The ESMF was prepared by MOAI as the main project safeguard document. The ESMF provides the overall

		process for screening subprojects and activities for environment and social impacts, conducting the assessment of environment and social impacts of specific subprojects and activities during the project implementation once the technical details are known; it also provides guidance on the range of measures to effectively address impacts while adhering to relevant existing environmental protection laws, regulations and standards in Myanmar, as well as with the WB's Safeguards Policies and international good practice. The ESMF also provides information on the type, level and depth of environmental and social impact assessments (ESIAs/EMPs/ECoPs) required for each of the investments and conduct cumulative impact assessments, where relevant, based upon the outcomes of the screening. The Terms of References (TORs) for various technical studies, including the feasibility studies of investments, will incorporate environmental and social impact assessments and considerations to ensure that safeguard issues and measures are mainstreamed into studies and advisory services. The TORs will be submitted to the Regional Safeguard Secretariat for review and approval. The draft ESMF has been disclosed in country in English on January 16, 2015 and in local language on February 2, 2015 as well as in English in Infoshop on January 20, 2015, and it was subject to public consultations at 4 potential project sites as well as in Yangon during February 3-10, 2015.
Natural Habitats OP/BP 4.04	Yes	There are no known protected areas in the schemes foreseen to be covered by the project. The physical interventions (including those proposed for improving the safety and operation of the existing dams associated with the funded irrigation schemes) are highly unlikely to lead to conversion or degradation of critical or other natural habitats. The ESMF assessment notes that there are no known endangered or critical fauna or flora in the area of the four irrigation schemes. However, given that the proposed project irrigation schemes for Sin The and Swa are situated within Sittoun basin area, while Male Nattuaung and North Yamar are lying under Ayerwaddy basin area and Chindwin basin area, respectively, there could be potential impacts to natural habitats such as rivers, wetlands or riverine vegetation downstream. ESIAs to be conducted during implementation assess project impacts on natural habitats and corresponding

		measures will be included in the ESMP.
Forests OP/BP 4.36	No	The project will not finance activities that will affect forest, forest health and forest-dependent communities. The draft ESMF findings concluded that there is no forest or any protected vegetation in irrigated areas although different forest types have been variably observed in the upstream catchment area of each irrigation scheme. The rapid assessment made as part of ESMF preparation observed the forest cover changes in the 4 catchment areas and deforestation rates are already high (e.g., 50% in Sin The 1990 vs 2013; 45% in North Yamar 2000 vs 2013; 19% in Swa 2000 vs 2013, and 12% in Male Nattaung (2002 vs 2013).
Pest Management OP 4.09	Yes	A potential long-term environmental impact of the project implementation would be the possible increase in traces of agro-chemicals in groundwater, drainage networks, and nearby streams. The project will include promotion of integrated pest management and production systems. The procurement of chemical pesticides is not allowed under the project. The project will demonstrate the use of organic fertilizers (e.g. green manuring) as part of extension demonstrations of technical packages, which are legally allowed for use in country. However, the improved irrigation facilities and intensification of crop systems may induce some pesticides use leading to increased usage. Integrated Pest Management practices will be implemented in all irrigation areas based on the Integrated Pest Management Plan Framework developed during preparation. Site-specific IPMPs will be developed and promoted during implementation.
Physical Cultural Resources OP/BP 4.11	Yes	Archaeological and cultural heritage sites have not been found in the project area, although there are religious buildings such as monasteries and pagodas in project villages. Relevant officials confirmed that there are no sacred sites, graveyards and/or burial places along the canals in the project areas. Since detailed design and exact locations of rehabilitation have yet to be done, PCR policy is triggered. Detailed assessments of the project impacts on PCRs will be undertaken during site specific ESIAs for each of the irrigated schemes to be financed by the project.
Indigenous Peoples OP/ BP 4.10	Yes	The project would rehabilitate existing irrigation schemes and finance land improvement pilots in four target regions. The project irrigation schemes and land improvement pilot sites will be identified based the feasibility study to be conducted during implementation.

		The social assessment was conducted during preparation for four pre-identified irrigation schemes because they demonstrate socioeconomic and demographic characteristics, including the presence of ethnic minorities, typical of irrigated areas in project provinces. Some ethnic minority farmers are found to be present where irrigation schemes that may be included in the project exist in target regions. Ethnic farmers who receive water from project irrigation schemes will benefit from improved access to irrigation water. Some ethnic farmers may lose limited farmland if canal realignment and other project supported civil works result in loss of land or assets. However, such negative impacts are anticipated to be limited in scale. Also, it is anticipated that few local people including ethnic minorities who do not directly benefit from improved access to irrigation water will lose assets. Such impacts on farmland and private assets will be addressed per Land Acquisition and Resettlement Policy Framework (LRPF). Land improvement pilots are not anticipated to cause significant negative impacts on ethnic minorities other than limited losses of land and assets. Loss of farmland and assets due to land improvement pilot will be addressed per LRPF. Indigenous Peoples Planning Framework (IPPF) was developed and attached to the Environmental and Social Management Framework (ESMF). Ethnic Minority screening will be carried out during implementation per IPPF and, if ethnic minority communities who meet the eligibility criteria of OP 4.10 are found to be present in project area of influence, a site specific Social Assessment for the Ethnic Minority community including free, prior and informed consultations leading to their broad community support will be conducted in line with OP 4.10, and Indigenous Peoples Plan (IPP) will be developed.
Involuntary Resettlement OP/BP 4.12	Yes	The project will not result in large scale physical relocation of households or loss of land. Although not anticipated at this stage, if there is any physical relocation it will be of limited scope. Furthermore, the rehabilitation and capacity improvement of primary and secondary canals will require realignments which may result in losses of parts of land and/ or assets of farmers on the canal embankment. Civil works will be undertaken in

		crop idle seasons to avoid temporary land occupation to the extent possible. A Land Acquisition and Resettlement Policy Framework (LPRF) was prepared which provides policies and procedures that apply to loss of land and other private assets that may occur as a result of the project. The Land Acquisition Action Plans (LAAP) will be developed during implementation based on the provisions under LRPF. Land improvements pilots will also be conducted in 2-3 sites which may result in a limited loss of farm plots for participating farmers. The impacts are generally not significant as it is foreseen that the majority of farmers will lose less than 10 percent of the productive assets such as farmland. Here again no physical relocation of households is anticipated. It is expected that the majority of impacts will be addressed through the voluntary exchange of land between farmers, and the increased productivity and income that will result from land improvement pilots. A third party service provider will help rights holders and land users within the boundary of the pilot land improvement sites mediate between themselves for land swaps and provide in-kind assistance to help farmers when needed to help restore their livelihood. The protocol and conditions of all voluntary donations are provided in detail the LRPF will apply to land improvement. Farmers will be informed that, in the event that income is not fully restored after two cropping seasons, they are entitled to income support and compensation for losses of income. Farmers who decide not to participate in the land improvement pilot have the option to leave the farmland with compensation and livelihood support if needed. Civil works will be carried out to improve the safety and operation of dams from which the project irrigation schemes will receive water, based on the recommendations of the dam safety study conducted during the preparation. Feasibility studies that will be carried out during implementation will identify the types and scale of civil works that the project will finance. Private land will unlikely be affected, and access to natural resources will also not be affected.

		The rehabilitation of access roads may require loss of private assets or land, since the exact irrigation schemes to be included in the project scope are not determined yet. In such an event, compensation will be provided at replacement value for loss of land or assets and livelihoods restored if applicable.
Safety of Dams OP/BP 4.37	Yes	Although the project will not finance construction of new dams or structural and significant operation changes in the existing ones, the irrigation systems financed by the project would draw water directly from specialized irrigation reservoirs formed by a number of existing dams. A due diligence of the four dams identified during preparation has been conducted during the project preparation to assess their safety and integrity and a Dam Safety and Integrity Report was prepared in line with OP/ BP 4.37 for these four dams. The Report provides recommendations for works related to dam safety and repairs which may include undertaking bathymetric survey to assess actual sediment yield; preparing Instrumentation Plan and Installing Monitoring Instruments (benchmarks, piezometers and "V" notches); embankment and spillway repairs; clearing of the trees and bushes at the downstream slope and toe area of the dams. The final choice of dam safety repair works depends on the outcome of the technical feasibility studies. During the project preparation, the framework of the Emergency Preparation Plan (EPP) was prepared, based on which the full-fledged EPP will be prepared during project implementation. A Dam Safety assessment will be carried out for the remaining dams to be identified during implementation. Four plans will be prepared for large dams, namely: Construction Supervision and Quality Assurance Plan; Instrumentation Plan; EPP; and O & M Plan. In addition, an Independent Dam Safety Expert will be hired by the project to make sure requirements of OP 4.37 are reviewed independently and are met.
Projects on International Waterways OP/BP 7.50	Yes	The Ayeyarwady rises in the Himalayas, bisects Myanmar from north to south and empties through a nine-armed delta into the Bay of Bengal. A small portion of the catchment areas that feed two of the tributaries of the river (the Maykha and the Malikha) are located in China. The Malikha tributary in turn is fed by a sub-tributary originating within India. This meets the definition of an International Waterway as stipulated in paragraph 1 of the WB OP 7.50 on International Waterways, although the

		combined flow outside of Myanmar is estimated to be less than 1 percent. OP 7.50 applies since the project will finance the rehabilitation and improvement of management of irrigation and drainage infrastructure and associated reservoirs in the Sagaing and Mandalay Regions, including related feasibility studies and engineering designs. The project will rehabilitate and improve existing gravity irrigation and drainage schemes in the Sagaing and Mandalay regions which are exclusively located in tributaries of the Ayeyarwady River with their catchments fully located in Myanmar territory. However, the exact irrigation schemes that will be rehabilitated under the project will be determined following detailed feasibility studies. Nonetheless, the project will not finance any investments which would lead to water abstraction rates significantly above the original abstraction rates. In opposite, the rehabilitation and operational improvement will enhance the reliability and flexibility of water delivery services to the farmers in existing irrigation systems to improve their productivity, to enable crop diversification and to reduce production risks. Hence, the project is not expected to adversely affect the quality or quantity of water flows to other riparians and will not be adversely affected by other riparians' possible water use. On this basis, the Bank has determined that the proposed project does not require riparian notification in accordance paragraph 7(a) of OP 7.50.
Projects in Disputed Areas OP/BP 7.60	No	The project is not located in disputed areas.

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:
The project is rated category "B" in line with the WB OP/BP 4.01 on Environmental Assessment primarily due to the rehabilitation nature of the proposed irrigation works and limited scale of works, which will take place mainly within the footprint of existing irrigated systems on established agriculture lands, as well of the dam safety improvement linked to existing irrigation dams (e.g., typical works will include repair of slopes and dam crest covers; repair of existing spillways; installation of monitoring equipment; repair of gate devices and provision of infiltration blankets to reduce seepage; and surfacing of access road where necessary). In addition, the project will also finance farm advisory and technical services and institutional strengthening, among other activities. The irrigation sites will be selected against economic, technical, social and environmental criteria agreed with MOAI. It is expected that the project would target up to 8 existing irrigation sites in four project regions. Implementation of irrigation and drainage infrastructure and land improvements investments on farmer fields under Component 1 are mainly

rehabilitation by their nature and are not expected to have significant negative environment and social impacts. In 2-3 selected systems among those where the project will rehabilitate irrigation and drainage infrastructure, the project will also pilot land improvement. The project will also promote farmers' participation in irrigation management through Water User Groups (WUG), and improve their access to new skills and knowledge about farming skills which will serve to expand their cropping choices and optimize their resource use.

Potential negative environmental impacts could include (i) construction related damage caused by contractors during construction activities which are limited to the rehabilitation and improvement of existing irrigated agriculture infrastructure (e.g., construction waste disposal, dumping of excavated sediments and other materials from irrigation canals and drainage collectors); (ii) water quality impacts such as potential increased surface water contamination resulting from possible long term use of fertilizers and drainage pollution; and (iii) soil salinization or erosion associated with maintenance of existing irrigation practices Further, as the proposed project is in the upper watershed of the Andaman Sea basin into which is flowing through the Ayeyarwady River Delta, there is need to guard against any possible ecosystem and hydrological issue.

The rehabilitation and capacity improvement of primary and secondary canals will likely require realignments which may result in losses of land and/ or assets on the canal embankment. Since the original alignments will be followed for most parts of the canals, the impacts are unlikely to be significant for the most part, and no physical relocation is anticipated to be necessary for the most part. Civil works will be undertaken in crop idle seasons to avoid temporary land occupation to the extent possible. A Land Acquisition and Resettlement Policy Framework (LRPF) was prepared in line with OP 4.12 which provides policies and procedures that apply to loss of land and other private assets that may occur as a result of the project. The Land Acquisition Action Plans (LAAPs) will be developed during implementation based on the provisions under LRPF. The LRPF also includes a detailed protocol, process and conditions for voluntary land donation that it is anticipated will occur.

The project would also help farmers improve the parts of the irrigation and drainage systems owned and managed by farmers themselves (e.g. watercourses) through rehabilitation of culverts, canals and ditches, or construction of new pathways, canals and ditches owned and managed by farmers themselves. Affected farmers themselves will plan and design such civil works with the technical assistance of the Irrigation Department (ID). No significant land acquisition or physical relocation of households is anticipated to be necessary, however, assets such as trees and structures may need to be removed, and readjustments, on-field extensions and changes of land use will also likely also occur. Such impacts it is anticipated will mostly result in the reconfiguration of the parts of farmland within the original boundary without affecting land ownership or causing permanent loss in income streams. Small parts of farmland that beneficiary farmers currently use for farming may be transformed into canals, ditches and pathways, if so wished by affected farmers themselves, however, affected farmers will continue to own and manage such canals, ditches, and farm access pathways as part of their own farm plots. The size of plots that farmers can use for farming may be slightly reduced depending on how plots are reconfigured, and income may be affected temporarily, however, such a temporary income loss should be covered by the improved access to irrigation water. Civil works will likely be completed and production will be recovered after one cropping season or two. In the event that the loss in production and the resultant loss in income are not recovered within two cropping season, the project will provide income support u ntil recovered.

The project will also support land improvement pilots in 2-3 sites which may result in a limited loss of parts of farm plots for participating farmers. It is expected that impacts will not be significant: that the majority of farmers will loseless than 10 percent of productive assets such as farmland. Since the land improvement pilot will only support readjustment of farmland, no physical relocation of households is anticipated. It is expected that the majority of impacts will be addressed through the voluntary exchange of land between farmers, and the increased productivity and income that will result from land improvement pilots will cover the temporary income loss due to the implementation of the pilots. The protocol and conditions of voluntary donations provided in the LRPF will apply to land improvement, namely: (i) affected people are the direct beneficiaries; (ii) know that they have the right to refuse to donate land or assets, or accept in-kind assistance offered by fellow farmers; (iii) agree to donate land or assets without coercion or under duress; (iv) will not lose more than 10 percent of their total irrigated land or sources of income; and that (v) technical features of the project activities are such that negative impacts will be fully recovered from the increased income as a result of the project in 2 cropping seasons. In the event that income is not fully restored for any participating farmer after two cropping seasons, the project will provide income support to such farmers. The affected farmers will be clearly informed that, in the event that income is not fully restored after two cropping seasons, they are entitled to income support until restored. Those farmers who opt out of the pilot are entitled for alternative farmland of the same size and productivity, or cash compensation at replacement value, and compensation at replacement values for all affected assets including trees, structures and standing crops and restoration of livelihood if applicable.

The construction of village extension education centers will cause land acquisition since the project will either rehabilitate existing centers at their current locations or newly establish them by transforming existing government buildings on the state land. Small facilities for seed storage and value added processing activities will be built on community or farmers land, if and only if direct beneficiary groups (WUGs or women's groups, as relevant) elect such facilities to be built in their villages. Such beneficiary groups will be allowed to donate land to house such facilities, following the principles, procedures and processes provided in the LRPF.

Some civil works will also be carried out to improve the safety and operation of dams from which the project irrigation schemes will receive water. Feasibility studies that will be carried out during implementation will identify the types and scale of civil works that the project will finance. They will typically include works on the dam body such as the repair of slopes, dam crest covers and existing spillways, the installation of monitoring equipment, the repair of gates/hoisting devices and the provision of infiltration blankets to reduce seepage. Limited acquisition of land or loss of access to livelihood opportunities is expected to occur. The rehabilitation of access roads may require loss of private assets or land, since the exact irrigation schemes to be included in the project scope are not determined yet. In such an event, compensation will be provided at replacement value for loss of land or assets.

It is anticipated that some ethnic minority communities who meet the eligibility criteria of OP 4.10 are present in potential project areas, although the majority of people who would be affected by the project would be ethnic Bamar. OP 4.10 is thus triggered. A social assessment was carried out during preparation and collected and analyzed socio-economic, demographic/ ethnographic characteristics of project regions. Since the project would rehabilitate existing irrigation schemes, the social assessment focused on those parts of the project regions with existing irrigation schemes. Potential negative impact on ethnic minorities will be similar to Bamar farmers, and will be likely limited mostly to minor losses of farmland as a result of the rehabilitation of primary and

secondary canals and land improvement pilots. Such impacts will be addressed through LRPF. The Indigenous Peoples Planning Framework (IPPF) was developed and attached to the Environmental and Social Management Framework (ESMF). IPPF provides steps to ensure that ethnic screening will be conducted during project implementation, that Social Assessment (SA) including free, prior and informed consultations will be carried out with affected ethnic minorities leading to their broad community support, and that Indigenous Peoples Plan (IPP) will be developed in line with the provisions of IPPF

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

A potential long term environmental impact is the possible raising of groundwater levels, a known effect of increased irrigation after rehabilitation and increased system utilization. Further, a potential indirect impact of the rehabilitated scheme could be on drinking water quality for villages that might use wells around the irrigation sites. Also, possible conflicts with other water source users may occur (dam/reservoir operation for other activities such as a hydro power station) as well as the risk of utilizing the allowed volume of water abstracted from water sources such as rivers and streams. Many of these environmental impacts will be mitigated through the design and implementation of engineering solutions, for example, canal lining, and improved operational management. Also, excessive use of fertilizer and pesticide by farmers may impact the quality of water that drains from agriculture field to adjacent natural watercourses or the groundwater impacting long term drinking water sources located in the project sites.

Education of the farmers through extension services is an important mitigation mechanism, regarding in-field preparation and operation, cropping patterns, soil and water conservation measures, and application of fertilizers. Beneficiary farmers will receive positive long-term benefits from the improved access to irrigation water and extension services. The project will assist them to form inclusive WUGs to enable them to equitably allocate water among member farmers including vulnerable farmers such as women headed households and ethnic minority farmers.

Cumulative environmental impacts that might be generated at the project sites include possible water contamination downstream from reservoirs linked to rehabilitated irrigation schemes due to uncontrolled and unregulated activities such as mining and gold panning in the upper watershed. High arsenic levels were found in Male Nattaung dam and nitrate level exceeded maximum limit in water sample taken from the irrigated canal of Sinthe; such pollution if not addressed at source could affect quality of surface and ground water downstream despite rehabilitation of related irrigation schemes. These potential impacts will be addressed in the site specific environmental and social assessments.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

During implementation, Feasibility Studies will be carried out to assess the technical, economic, social and environmental feasibility of rehabilitating irrigation schemes in the project target regions. The irrigation schemes that will be included in the project will be determined based on the result of the Feasibility Studies. They will include scheme specific Environmental and Social Impact Assessments (ESIA)/Environmental and Social Management Plans (ESMP), which will include IPP if needed in line with OP 4.10 and LAAP will also be developed as part of the Feasibility Studies.

The four schemes for which social assessment was carried out during preparation may be

rehabilitated by the project if the feasibility is ascertained under the feasibility studies. Land improvement pilot sites will be selected during implementation based on the assessment of technical feasibility as well as potential environmental and social impacts. Site specific Social Assessments will be carried out as part of the Feasibility Studies, and a LAAP will also be developed as part of Feasibility Studies. Where ethnic minorities are found to be present as a result of the ethnic screening which will be carried out at the beginning of the Feasibility Study, Indigenous Peoples Plan (IPP) will be developed in line with OP 4.10.

Many of the irrigation schemes in the project target townships, which are candidate schemes to be included potentially in the project, were built some 10 – 20 years ago. The SA carried out during project preparation found that, in some cases, people were displaced without adequate compensation when dams – and to some extent primary canals – were originally built. The SA conducted during preparation was not a comprehensive assessment, since it included only the four irrigation schemes that were pre-identified for potential funding under the project. It will be followed-up by a more comprehensive site specific Social Assessment, including all candidate schemes, during implementation.

The project irrigation schemes as well as the dams that the project irrigation schemes take water from were originally built some 10 – 20 years ago. The social assessment conducted during preparation found that local people were displaced when they were built, and that some of them did not receive proper compensation at replacement cost.

The land issues related to existing dams and reservoirs are considered to be beyond the scope of and will not be directly addressed by the project. These complex legacy issues are being addressed at the country level through the auspices of the National Land Resource Management Central Committee and the Parliamentary Land Loss Inquiry Commission. The Bank, under the Country Partnership Framework, may provide separate support on land, including country wide land related studies or assessments. However, under the project, the existence of land legacy issues directly related to candidate irrigation schemes to be considered to be included in the project will be assessed as part of the more comprehensive SA to be carried out during implementation.

To such effect, the SA will, among other issues: identify who were affected when the candidate irrigation schemes were originally built including their ethnic identities; assess what compensation and assistance they received to restore livelihood and what are their current levels of livelihood; and determine if there are significant unresolved land issues or disputes which need to be addressed within the scope of the project objectives or that if not addressed would hinder the implementation of project activities. The initial findings of the SA will also be used as an input for site selection where only candidate schemes which have no or relatively minor land legacy issues which can be effectively addressed under the scope of the project would be eligible to participate in the project. For the participating schemes, any land legacy will be addressed through the LAAP, and the IPP, if relevant, which will be developed during implementation and include measures to restore the livelihood of affected people in line with the objectives of applicable Bank policies

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

The MOAI prepared an ESMF to meet the project appraisal conditions. In line with this ESMF, during implementation, site-specific environmental impact assessments and associated EMPs with detailed monitoring and mitigation measures will be prepared as part of a team also undertaking feasibility and social studies. The draft ESMF disclosed in country in a local language and in

Infoshop in English has been discussed in the public consultations at the 4 potential project sites as well as in Yangon during February 3-10, 2015. Implementation of the Environmental and Social Management Plan (ESMP) will also be discussed and agreed with the Government and adequate funds provided in the project for the development of each site-specific ESMP.

The ESMF requires that a monitoring program be developed for each scheme. The environmental monitoring program will concentrates on key indicators of the possible adverse impacts identified by the environmental impact assessments, in particular groundwater quality and levels warning of approaching water-logging problems and drainage effluent quality affecting downstream areas. The monitoring program will be prepared in adequate detail, setting out the location and frequency of measurements, and the parameters to be measured and tested. Specific training and capacity building program for ESMP implementation and monitoring will be provided by Bank experts as well as international consultants during the project implementation.

On the social side, the project implementation agency, MOAI, carried out with the help of consultants a social assessment during preparation to assess the potential positive benefits and negative impacts of the project. Four irrigation schemes were pre-identified for the purpose of social assessment because they demonstrate socioeconomic and demographic characteristics, including the presence of ethnic minorities, typical of irrigated areas in project target provinces. Any of the four irrigation schemes may be rehabilitated under the project if their technical, economic, social and environmental feasibility is verified under Feasibility Studies which will be conducted during implementation.

MOAI also developed the LRPF in line with OP 4.12 which provides project policies and procedures to address its impact on land or private assets. The MOAI also developed the ESMF, which includes the IPPF as its annex. Indigenous Peoples screening will be conducted during implementation to assess if an ethnic minority community who meets the eligibility criteria of OP 4.10 is present in or have collective attachment to the project area of influence, and SA including free, prior and informed consultations with affected ethnic minorities will be carried out per IPPF leading to their broad community support. IPP will be developed based on the result of SA and free, prior and informed consultations based on the provisions of the IPPF.

The PMU will be responsible for implementation of the ESMF and its provisions, whereas the day-to-day supervision of the site specific mitigation activities and implementation of monitoring actions will be overseen by the PIUs at the township level. The PMU will create a Safeguard Unit composed by an environmental and a social specialist. This Unit will be in charge of: screening and scoping, preparing terms of reference for environment and social issues to be included in feasibility studies, detailed screening of sub-projects identified in FS, preparing terms of reference for safeguard instruments as well as for the third party service provider, reviewing and quality control of safeguard instruments produced for each sub-project, monitoring and follow up of safeguard implementation. The Bank will provide adequate training and support to the PMU and its Safeguards Unit to ensure that they have the technical and institutional capacity to undertake project screening. scoping and provide the ToRs.

The weak safeguard management capacity of institutions involved in the project including the PMU will be addressed through sustained trainings, designated supervision consulting services, and learning by doing type of activities. Technical training on environmental management and social mobilization for participatory development would be required to build the capacity of staff at operational and management level. Al so, there might be need for training to improve technical

skills in certain aspects for effective and irrigation management such as dam safety, hydrology and meteorology measurement and assessment, etc. A series of training workshops on implementation of the ESMF will take place as part of the project launch workshop and in particular during the initial year of implementation. This training will ensure that the main specialists are able to manage and monitor the environmental and social aspects of the ADSP activities. The workshops will be conducted by an external consultant with knowledge on the environmental management requirements for Myanmar, including substantial knowledge on World Bank and IFC safeguard policies and requirements (e.g., OHS standards). Adequate budget for safeguards capacity building training is included in the ESMF.

During implementation, MOAI will also hire a third party service provider who is knowledgeable about the Bank safeguard policies who will assist MOAI in engaging with participating farmers and affected people, assist the capacity development of Water User Groups (WUG), and lead in participatory M&E. The third party service provider will work under the guidance and supervision of the Safeguard Coordinator to be hired by and help the PMU, to help ensure the project compliance with the OP 4.01, OP 4.10 and the OP 4.12.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

The key stakeholders of the project include farmers, who have access to irrigated land in selected irrigation schemes in Bago East, Sagaing, Mandalay, and Nay Pyi Taw regions. In addition the project would benefit households in targeted communities who may not have access to irrigated land through participation in extension activities which would cover the whole grow irrigation areas, including non-irrigated lands. Consultations have been undertaken with key ministries, the Members of the Parliament, and relevant NGOs and CSOs.

The ESMF includes specific measures for consultation and public disclosure during project implementation, including particular measures for consulting with ethnic minorities as described in the IPPF for site-specific activities in areas with ethnic minorities. The draft SA, ESMF and LRPF were submitted to the Bank's Infoshop on January 20, 2015 and were publicly disclosed in country in Myanmar language on February 2, 2015 and in English on January 16, 2015.

Consultations were held in the Swar Chaung irrigation system in Bago East region (February 3, 2015), the Sin The irrigation system in Nay Pyi Taw (February 4, 2015), the Male Nat Taung irrigation system in Mandalay Region (February 5, 2015), the North Yamar irrigation system in Sagaing Region (February 6, 2015), and in Yangon (February 10, 2015).

There were no summaries of the project documents for the villages. However, the government team prepared a comprehensive presentation in Burmese which provided a summary of the project which included a more detailed summary of the findings of the ESMF and LARF provided with the support of the World Bank team. The Bank safeguards team attended these consultations and provided clarifications as needed.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other	
Date of receipt by the Bank	07-Nov-2014
Date of submission to InfoShop	20-Jan-2015
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	////

"In country" Disclosure	
Myanmar	16-Jan-2015
Comments: The English version of ESMF, including LRPF, IPPF and Pest Management Framework, has been disclosed on the project website in country on January 16, 2015. The draft ESMF translated in local language was disclosed in country on February 2, 2015.	
Resettlement Action Plan/Framework/Policy Process	
Date of receipt by the Bank	07-Nov-2014
Date of submission to InfoShop	20-Jan-2015
"In country" Disclosure	
Myanmar	16-Jan-2015
Comments:	
Indigenous Peoples Development Plan/Framework	
Date of receipt by the Bank	07-Nov-2014
Date of submission to InfoShop	28-Jan-2015
"In country" Disclosure	
Myanmar	16-Jan-2015
Comments:	
Pest Management Plan	
Was the document disclosed prior to appraisal?	Yes
Date of receipt by the Bank	07-Nov-2014
Date of submission to InfoShop	20-Jan-2015
"In country" Disclosure	
Myanmar	16-Jan-2015
Comments:	
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/ Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why:	

C. Compliance Monitoring Indicators at the Corporate Level

OP/BP/GP 4.01 - Environment Assessment	
Does the project require a stand-alone EA (including EMP) report?	Yes [×] No [ ] NA [ ]
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?	Yes [×] No [ ] NA [ ]
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes [×] No [ ] NA [ ]
OP/BP 4.04 - Natural Habitats	
Would the project result in any significant conversion or degradation of critical natural habitats?	Yes [ ] No [×] NA [ ]

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes [ ] No [ ] NA [×]
OP 4.09 - Pest Management	
Does the EA adequately address the pest management issues?	Yes [×] No [ ] NA [ ]
Is a separate PMP required?	Yes [ ] No [×] NA [ ]
If yes, has the PMP been reviewed and approved by a safeguards specialist or PM? Are PMP requirements included in project design?If yes, does the project team include a Pest Management Specialist?	Yes [ ] No [×] NA [ ]
OP/BP 4.11 - Physical Cultural Resources	
Does the EA include adequate measures related to cultural property?	Yes [×] No [ ] NA [ ]
Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?	Yes [×] No [ ] NA [ ]
OP/BP 4.10 - Indigenous Peoples	
Has a separate Indigenous Peoples Plan/Planning Framework (as appropriate) been prepared in consultation with affected Indigenous Peoples?	Yes [×] No [ ] NA [ ]
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?	Yes [×] No [ ] NA [ ]
If the whole project is designed to benefit IP, has the design been reviewed and approved by the Regional Social Development Unit or Practice Manager?	Yes [ ] No [ ] NA [×]
OP/BP 4.12 - Involuntary Resettlement	
Has a resettlement plan/abbreviated plan/policy framework/ process framework (as appropriate) been prepared?	Yes [×] No [ ] NA [ ]
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?	Yes [×] No [ ] NA [ ]
OP/BP 4.37 - Safety of Dams	
Have dam safety plans been prepared?	Yes [×] No [ ] NA [ ]
Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?	Yes [ ] No [ ] NA [×]
Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?	Yes [ ] No [×] NA [ ]
OP 7.50 - Projects on International Waterways	
Have the other riparians been notified of the project?	Yes [ ] No [×] NA [ ]
If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?	Yes [×] No [ ] NA [ ]
Has the RVP approved such an exception?	Yes [×] No [ ] NA [ ]

The World Bank Policy on Disclosure of Information	
Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes [×] No [ ] NA [ ]
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes [×] No [ ] NA [ ]
All Safeguard Policies	
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes [×] No [ ] NA [ ]
Have costs related to safeguard policy measures been included in the project cost?	Yes [×] No [ ] NA [ ]
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes [×] No [ ] NA [ ]
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes [×] No [ ] NA [ ]

III. APPROVALS

Task Team Leader(s):	Name: Paavo Eliste	
Approved By		
Safeguards Advisor:	Name: Peter Leonard (SA)	Date: 02-Mar-2015
Practice Manager/ Manager:	Name: Nathan M. Belete (PMGR)	Date: 03-Mar-2015

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