Report Number: ICRR0021977

1. Project Data

Project ID	Project Name
P114949	ZM-Water Resources Development
Country	**Practice Area(Lead)**
Zambia	Water

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
IDA-52390	30-Nov-2018	25,795,503.57
Bank Approval Date	**Closing Date (Actual)**	
25-Apr-2013	30-Nov-2018	

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	50,000,000.00	0.00
Revised Commitment	29,661,907.46	0.00
Actual	25,795,503.57	0.00

Prepared by	Reviewed by	ICR Review Coordinator	Group
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2. Project Objectives and Components

a. Objectives

The Project Development Objective as stated in the Financing Agreement (Schedule 1, page 6) and the Project Appraisal Document (PAD, page 6) is:

"To support the implementation of an integrated framework for development and management of water resources."

This assessment is based on the two sub-objectives: (1) To support the implementation of an integrated framework for development of water resources: and (2) To support the implementation of an integrated framework for management of water resources.

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

This project was designed as a "framework" project. (In these projects, only the safeguards frameworks are prepared at appraisal and detailed safeguards instruments are to be developed, based on the feasibility studies conducted in the first year of implementation. The advantages of using such an approach is usually linked to flexibility during implementation that, in principle, could lead to better selection of project locations. The disadvantages are the unforeseen risks relating to project design and possible resettlement issues, since there are no detailed assessments at appraisal). There were three components. (PAD, pages 6-7).

1. Water Resources Management. The estimated cost at appraisal was US$8.0 million. The actual cost was US$4.9 million. The actual cost of this and other components were lower than the appraisal estimate, due to the significantly reduced scope of project activities during execution (discussed in section 2e and 4). This component aimed at building capacity for strengthening management of water resources.
This component supported the following: (i) capacity building for managing the hydro-meteorological and groundwater monitoring networks and strengthening their monitoring systems: (ii) developing flood forecasting and early warning systems: (iv) preparing consolidated catchment and basin-level water resources development plans and strategic water assessments: and (iv) implementing arrangements for allocating, licensing and monitoring water resources.

2. Water Resources Development. The estimated cost at appraisal was US$30.0 million. The actual cost was US$13.4 million. Activities in this component include: (i) developing/rehabilitating small-scale water resources infrastructure (100 small dams and other small civil works for retaining water, reducing erosion and enhancing recharge); (ii) updating the 1995 Dam Development Master Plan for priority investments; (iii) studies for future medium- and large-scale water investments; (iv) supporting environmental and social assessments; (iv) community mobilization; and (v) implementing a nationally managed groundwater development program.

3. Institutional Support. The estimated cost at appraisal was US$12.0 million. The actual cost was US$6.3 million. This component aimed at strengthening the institutional capacity for managing surface water and groundwater. Activities included capacity building for: (i) supporting the institutions established under the 2011 Water Resources Management Act and implementing the provisions of the Act; (ii) building capacity for negotiations, conflict resolution, monitoring and compliance with international water instruments; (iii) enhancing inter-agency coordination; (v) overall project management; and (vi) developing a training program.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project cost. The estimated cost appraisal was US$50.0 million. The estimates were revised down to US$29.6 million following cancellation of part of the credit (discussed below). The actual project cost was US$25.7 million.

Project financing. The project was financed by an IDA credit of US$50.0 million. US$20.3 million was cancelled for reasons discussed below. With this, the revised estimate was US$29.6 million. The amount disbursed was US$25.7 million. There was parallel financing for complementary activities by the German state-owned development bank (KfW).

Borrower contribution. No borrower contribution was planned at appraisal. There was no borrower contribution during implementation.

Dates. The project approved on April 25, 2013, became effective on December 24, 2013 and closed as scheduled on November 30, 2018.

Other changes. The Mid-Term Review (MTR) held on April 19, 2017, identified non-compliance with the World Bank's safeguards policies and poor quality of the dams constructed under the project. The review recommended corrective measures for safeguards compliance (discussed in section 10). As the project remained in safeguards non-compliance, the Bank issued a threat of suspension on January 29, 2018. Lack of timely implementation of corrective actions, led the Bank to suspend the loan on March 26, 2018, and this suspension remained in effect until project closure. Following the partial suspension, the project activities focused solely on remedial works associated with safeguards compliance.

There were two Level 2 restructurings. The first restructuring on October 17, 2018, cancelled the undisbursed balance of the IDA credit at the government's request. In doing so, the government committed to undertaking activities for safeguards compliance, as obliged under the Financing Agreement.

The Bank allocated US$100,000 from the IDA credit to pay compensation to project-affected people identified in the Abbreviated Resettlement Action Plan (ARAP), at government request, through the second restructuring on November 30, 2018.

3. Relevance of Objectives

Rationale

Country context. Economic growth in the years before appraisal was urban-centered, with 74% of the rural population classified as poor. The water sector issues in the country included frequency of droughts and floods, hydrological variability and seasonal water shortages, that were exacerbated by growing demand for water from the major sectors of the economy and inadequate water infrastructure. Despite Zambia's strategic location in the head waters of major international rivers such as the Congo and Zambezi, its water resources remained untapped, with installed hydropower capacity at only 27% of the potential.

Government strategy. The PDOs were relevant to the government's priorities. The government's "*Vision 2020*" broadly articulated the need for inclusive growth and economic diversification. At appraisal, the Sixth

National Development Plan for 2011-2015, underscored the need for water sector investments in rural areas. The National Water Policy issued in 2010 articulated the need for an Integrated Water Resources Management approach. The government followed this through, by enacting the Water Resources Management Act of 2011. This legislation translated the provisions of the National Water Policy into enforceable legal provisions and established the Water Resources Management Authority as an independent water regulator for sector planning and granting water permissions for surface, groundwater and international waters. Zambia's current Seventh National Development Plan for 2017-2021, identifies the water sector as a priority sector.

Alignment with the Bank strategy. The PDOs are well-aligned with the Bank' strategy. At appraisal, the PDOs were relevant to the Bank Strategy for Africa, articulated in *Africa's Future and the World Bank Support to it,* issued in 2011, and the Country Assistance Strategy (CAS) for Zambia for 2008-2011. The Bank strategy underscored the need for closing Africa's infrastructure gap and building resilience to the effects of climate change. The CAS acknowledged the importance of managing water resources for addressing rural poverty issues (CAS, page 26). The PDOs were also aligned with two of the three focus areas of the Bank's current Country Partnership Framework for 2019-2023. The first area highlighted the need for even territorial development and ensuring that rural communities are resilient to climate and environmental shocks. The third area highlighted the need for building resilient institutions through better sharing of natural resources in the region (CPF, page 29). The Bank has a long history of supporting water supply projects, including through Bank support to small-scale irrigation schemes.

However, the design of this project was overly ambitious, by covering many different and independent activities under each of its three activities. (ICR, paragraph 53). The logistics associated with wide distribution of project sites made it difficult to conduct efficient supervision by an individual consultant.

Overall, taking into account the high priority of the water resources sector and the project's close alignment with the Bank and government strategies, the relevance of the project's objectives is rated as substantial albeit the project's design was ambitious.

Rating
Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1
Objective

To support the implementation of an integrated framework for development of water resources

Rationale

Theory of change. The activities included water infrastructure investments and institutional strengthening activities and the causal links between activities, outputs and outcomes were logical. The intended outcomes were monitorable in principle. Completing an infrastructure inventory and rehabilitating small scale water infrastructure for retaining water, reducing erosion and enhancing recharge, together with building capacity for medium and large-scale water investments, were expected to result in improving water storage in rural areas. However, as discussed in section 3, the project design was overly ambitious, with too many activities in each component.

Outputs (ICR, pages 10-11 and pages 32-.

- No dams were constructed (target 100 dams). The ICR (paragraph 23) notes that although ten dams were built, they were not certified when the project closed. Ancillary infrastructure was constructed at only two of the dam sites at closure.
- The inventory of the water infrastructure was not completed as targeted.
- No exploratory well fields were developed when the project closed (target four).
- Four drilling rigs for exploratory purposes were acquired under the project.
- Although guidelines for small dams were finalized in 2018, this activity was not completed with Bank financing as envisioned, but under a Water Facility Grant from the African Development Bank (AfDB).
- No water infrastructure investments were under preparation when the project closed (target five).

Outcomes (ICR, pages 28-29).

- Given that none of the dams were certified at project closure, no water storage facilities were established in the rural communities (target 100).
- The ICR (page 33) notes that there were no estimates on the number of direct beneficiaries when the project closed.

The ICR (paragraphs 41- 42) notes that a beneficiary survey was conducted between February - March 2019 on 185 people. The methodology entailed interviews with beneficiaries of four dams, regarding their situation before and after project interventions. The main conclusions of the survey were: (i) 85% of the respondents reported benefits due to better access to water during the dry season; (ii) agricultural benefits varied between sites, with slightly over a third (37%) of the respondents reporting an increase in income, due to better crop yields; and (iii) about 46% of the respondents reported an increase in income due to livestock activity and about 72% of the respondents reported seeing an increase in fish yield.

However, only a fifth of the respondents surveyed were assigned a plot on the irrigated area and plots inundated due to the impoundment of two dams (Chilbashi and Chikowa) had not yet been reassigned under customary land arrangements, which had a negative affect on the incomes of the affected households.

Given that the outcomes were not realized, and the evidence provided on the beneficiaries were inconclusive, efficacy is negligible.

Rating

Negligible

OBJECTIVE 2

Objective

To support the implementation of an integrated framework for management of water resources

Rationale

Theory of change. The causal links between project activities, their outputs and outcomes were logical, and the intended outcomes were measurable. Capacity building for managing the hydro-meteorological and groundwater monitoring networks, the development of flood forecasting and early warning systems, the preparation of catchment and basin-level water resources development plans, and the establishment of arrangements for allocating, licensing, managing and monitoring water resources, were all expected to lead to improvements in the management of water resources. These outcomes were aimed at contributing to the long-term outcomes of improving protection against floods and droughts and reducing pressure of the groundwater and surface water resources.

Outputs (ICR, pages 11-13 and pages 30-32).

- No catchment plans were developed for managing water resources (target six plans).
- There is no evidence that the water resources management authorities were financially stable when the project closed.
- No operational Water User Associations (WUAs) were created (target 120).
- Three courses on Hydrology, Hydrogeology and Dam Safety were held as targeted.
- Although data was collected to improve accuracy of hydrological forecast, there was no software or hardware infrastructure to analyze the data at closure.
- Of the ten reports submitted to the Ministry of Mines, Energy and Water Development, only five were accepted. These reports included improving the process for the operationalization of the Water Resources Management Authority (WARMA), the Department of Water Resources Development (DWRD) and the Ministry of Water Development Sanitation and Environmental Protection (MWDSEP).
- Four technical training events were conducted by the University of Zambia Integrated Water Resources Management Center as targeted.
- No flood risk zones were delineated (target six). No aquifer management plans were developed (target six).
- One hundred-gauge plates were acquired and most of them had been installed by the Water Resources Management Authority (WARMA).

Outcomes (ICR, page 28).

- 100% of the water permits were reported as having been converted from water rights as compared to the target of 90%. The ICR (page 30) notes however that the conversion from water rights to permits could not be validated by the Bank.

Rating
Negligible

OVERALL EFFICACY

Rationale
Almost all the activities were not completed and none of the outcomes were realized. Overall efficacy is negligible.

Overall Efficacy Rating	Primary Reason
Negligible	Low achievement

5. Efficiency

Economic analysis. A cost-benefit analysis was not conducted at appraisal, as the project was prepared as a framework project and investments were to be identified during preparation. According to the PAD (pages 11-12), expected project benefits were to come from: (i) improvements in communities' resilience to hydrological and climatic variability impacts; and (ii) the beneficial role that small reservoirs could play in safeguarding local livelihoods and sustaining communities through multiple uses (such as, due to enhanced water security, increased agricultural yields of smallholders, opportunities for fish farming, water for livestock and enhanced effects of groundwater recharge). At closure, an economic analysis was not conducted, given that most of the activities were not completed.

Administrative and operational issues. Lack of clarity on the roles of the departments, delays on decisions relating to staff assignments, understaffing and weak implementation capacity of the Project Management Team, contributed to delays during implementation. These were exacerbated by factors over which the project had no control such as presidential elections October 2014 (following the President's death) and again in August 2016. The lack of compliance with the Bank’s social and environmental policies culminated with the partial suspension of the Bank financing. Most of the activities were not completed and none of the outcomes were realized. Dam safety and involuntary resettlement issues were still pending when the project closed.

Efficiency Rating

Negligible

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 ☐ Not Applicable
ICR Estimate		0	0 ☐ Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The relevance of the PDOs to the government and Bank strategy is substantial. Efficiency of the two objectives - to support implementation of an integrated framework for development of water resources and to support implementation of an integrated framework for management of water resources - is negligible. as none of the outcomes were realized. Efficiency is negligible.

a. Outcome Rating

Highly Unsatisfactory

7. Risk to Development Outcome

Technical risk. There is substantial technical risk, given that none of the dams built under the project were certified at project closure. None of the activities associated with developing exploratory wells, catchment plans, installing hydrological networks and developing water users associations to ensure sustainability were completed. Likewise, sustainability of the Lidar Data developed under the project is contingent upon having access to proper software and hardware infrastructure, which is currently unavailable.

Institutional risk. It is not clear whether there are operational and maintenance arrangements at the provincial, district and community level that would support or enhance sustainability of the dams.

8. Assessment of Bank Performance

a. Quality-at-Entry

The project was prepared based on Bank's global experience with water resource development projects and Bank support to small-scale irrigation schemes in Zambia. Lessons incorporated at design, included securing communities' engagement through early consultations. Several risks were identified at

appraisal, including high/substantial risks associated with government's commitment to institutional reforms, weak implementation capacity and fiduciary risks. Mitigation measures incorporated at design, included close supervision and training on financial management for the relevant entities. With mitigation measures, the project risk was rated as moderate at appraisal (PAD, page 54). Appropriate arrangements were made at appraisal for monitoring and evaluation, fiduciary management, and safeguards compliance, for a designed as a framework project (discussed in section 9a and 10a and b).

There were major shortcomings at Quality-at-Entry. One, as discussed in section 3, the project's many different and independent activities under each of its three components was overly ambitious. Two, it is not clear if the project was ready for implementation. The ICR (paragraph 50) notes that the Bank approved a Project Preparation Advance (PPA) of US$2.9 million, eight months before project approval, to support project preparation. Only three percent of these funds were disbursed and only two (out of five) activities under the PPA were completed when the project became effective, namely, preparation of an environmental and social management framework for small-scale water resources infrastructure, and a training plan approved by the Bank. Three, the project underestimated the risks associated with safeguards compliance. The social and environmental safeguards risks were rated as moderate at appraisal. Lack of compliance with safeguards and dam safety considerations (due to the poor quality of works and weak criteria for site selection) eventually led to partial cancellation of the credit. Four, the mitigation measures relating to the institutional reforms, which were not backed with financial covenants or disbursement conditions, proved to be inadequate. And five, the project underestimated the risk associated with not having dedicated full-time staff to the project. The Project Management Team was staffed with civil servants seconded to the project and there were no full time M&E, financial management and safeguards staff, which were required conditions of project effectiveness.

Quality-at-Entry Rating
Unsatisfactory

b. Quality of supervision

During the four-year implementation period, seven Implementation Status Results Reports (ISRs) and five Aide Memoires (AMs) were filed. The supervision team was proactive and appropriately recommended corrective measures for safeguard compliance, following the recommendations of the Mid Term Review (MTR) on April 19, 2017. The measures included issuing a Threat of Suspension of on January 29, 2018, as the project remained out of safeguards compliance, and subsequently suspending part of the loan on March 26, 2018. As indicated in section 2e, the Bank also allocated US$100,000 from the IDA credit to pay compensation to project affected people at the government's request, through the second restructuring on November 30, 2018.

However, there were major shortcoming in supervision. One, although the lack of due process on safeguards was first recorded in a June 2016 aide memoire, this issue was not flagged as a serious concern until a year later. The required Environment Management Plan and Abbreviated Resettlement Action Plan were to be prepared early during implementation; however, they were prepared and disclosed only during the final phase of the project. This resulted in non-compliance with

safeguards requirements. Two, the criteria followed for prioritizing dam sites were weak, as some dams were not appropriate for meeting the needs of the communities. For example, the ICR (paragraph 64) notes that the Nabowa dam would have been better served with a weir rather than a dam, and the dam was also remote and difficult to access. Three, the official reporting systems did not flag important aspects of the project. The ICR (paragraph 91) notes that the financial management ratings for ISRs were rated as moderately satisfactory, although only three percent of the PPA was disbursed. Four, the hand over process of a Task Team Leader (TTL), which happened at a critical juncture of project implementation in late 2015 (when some key activities such as construction of dams were under consideration), was suboptimal, as the handover process neither included an overlap period nor a joint mission. And five, despite the recommendation of the Operations and Advisory Services (OAS) review to schedule the MTR in early 2016, the MTR was held a year later in August 2017, due initially to the change in TTL and subsequently to repeated postponements by the client (ICR, paragraph 92).

Quality of Supervision Rating
Unsatisfactory

Overall Bank Performance Rating
Unsatisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design
The project's results framework was aligned with the project activities and the key M&E outcome indicators were for the most part, appropriate. Indicators pertaining to establishing water storage facilities in rural communities and increasing the number of water infrastructure investments were appropriate, for monitoring performance with respect to development of water resources. Converting water rights to permits were appropriate for monitoring performance with respect to management of water resources. Baselines and targets were defined at appraisal. As indicated in section 3, the targets for the number of dams to be constructed under the project was clearly ambitious. The reporting system, developed by the Ministry of Mines, Energy and Water Development, for monitoring national water resources initiatives, was to be used for monitoring project performance (PAD, paragraph 31).

b. M&E Implementation

The ICR (paragraph 66) notes that the Project Management Team had a M&E Specialist. However, although the operational manual contained a check list to facilitate M&E, only one quarterly and annual report were received by the Bank team during implementation. Since M&E results and reports were not received on a regular basis, implementation progress could only be determined during mission meetings with the PMT.

c. M&E Utilization

The (meager) results of the M&E activities were used for monitoring progress. The ICR (paragraph 68) does not provide details but notes that data collection was weak during implementation. None of the outcome indicators were monitored as the project activities were not completed during implementation.

M&E Quality Rating

Negligible

10. Other Issues

a. Safeguards

The project was classified as a "Category B" project under the World Bank safeguard policies. Six safeguard policies were triggered: Environmental Assessment (OP/BP 4.01); Pest Management (OP 4.09); Physical and Cultural Resources (OP/BP 4.11); Involuntary Resettlement (OP/BP 4.12); Safety of Dams (OP/BP 4.37); and Projects on International Waterways (OP/BP 7.50). Since the project was a framework project, only the framework for Environmental and Social Management, Pest Management, Physical Cultural Resources Management, and resettlement management was prepared and publicly disclosed at appraisal. The existing regulations in the 2010 Food and Agriculture Organization (FAO) *Technical Guide for Small Earth Dams* was to be used for compliance with safeguards on Dam Safety (PAD, paragraph 62).

E**nvironmental Assessment, Pest Management, Physical and Cultural Resources, and Safety of Dams.** At closure, the project was not in compliance with the environmental, pest management, physical and cultural resources, and dam safety safeguards policies. The Mid Term Review identified non-compliance with the Bank's safeguard policies and poor quality of the ten dams constructed under the project, with respect to safety considerations. The MTR recommended corrective measures for resolving the issue (such as, hiring and deploying safeguards specialists to implement the required instruments for compliance with environmental and social safeguards, dam safety screening, reducing the number of dams to be constructed under the project to ten, using the technical consultant for supervising the dams and prior review for all ongoing and future tender for all dams). Since the corrective actions were not undertaken and the project remained out of safeguards compliance, the Bank issued a Threat of Suspension, which remained in effect until the project closed.

Involuntary Resettlement. The ICR (paragraph 81) notes that of the ten dams constructed under the project, Abbreviated Resettlement Action Plans (ARAPs) were required for six dams build under the project. ARAPs for the six dams were prepared and publicly-disclosed only at closure. The ICR (paragraph 82) notes that the Bank agreed to a request by the Government to restructure the project to allow up to

US$100,000 to finance cash compensation to the Project Affected People (PAP). Cash compensation payments to the PAP were still outstanding when the project closed.

Projects on International Waterways. The PAD (paragraph 64) notes that notification of the project was sent at appraisal to all riparian states within Zambezi River and Congo River Basin (that is, Angola, Botswana, Democratic Republic of Congo, Malawi, Mozambique, Namibia, Tanzania and Zimbabwe). The riparian states raised no objections.

b. Fiduciary Compliance

Financial management. A financial management assessment of the implementing agency - the Ministry of Mines, Energy and Water Development (MMEWD) - was conducted at appraisal. The assessment concluded that the management arrangements were deemed to be satisfactory and the financial management risk was rated as moderate (PAD, paragraph 48). The ICR (paragraph 70) notes that according to the 2016 Auditor General's report, contract management for construction of the dams was inadequate. During implementation, there were ineligible expenditures. There were delays in submission of audit reports in the initial years, as an unqualified accountant was assigned to the project. These issues were resolved when the project recruited a qualified and dedicated accountant in March 2016.

Procurement management. A procurement capacity assessment was conducted at appraisal. The assessment concluded that the procurement risk was High, due to the limited staff at the MMEWD given the potential increase in work load (PAD, paragraph 49). The ICR (paragraph 72) notes that an Independent Procurement Review conducted in November 2018 revealed a series of procurement issues from preparation to closure, including poor records keeping and management, poor quality of bidding documents, deficiencies in the criteria used in evaluating and comparing bids for small contracts, disqualification of bids for minor deviations, and payments for works contracts without the consultants' verification and approval. The ICR (paragraph 73) notes that records on contractor's payments were incomplete and inconclusive.

c. Unintended impacts (Positive or Negative)

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d. Other

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11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Unsatisfactory	Highly Unsatisfactory	

Bank Performance	Unsatisfactory	Unsatisfactory
Quality of M&E	Negligible	Negligible
Quality of ICR	---	Substantial

12. Lessons

The ICR draws the following main lessons that are presented here with some adaptation of language:

1**. A shared understanding between the government and the bank is especially required for a project designed as a framework project.** Most activities in this project were subject to substantial delays due to the inadequate understanding of the implementing agencies regarding the Bank's safeguards and fiduciary requirements. Further, to support effective implementation of framework projects in a context of weak implementation capacity, it would be help to lay out clear milestones at the start through the use of disbursement triggers. For instance, a list of investments in accordance with clear prioritization criteria could be a first-year milestone and as a disbursement condition in the Financing Agreement.

2. Involvement and better clarification of the roles of other ministries can be helpful in securing project ownership in projects where many ministries are involved. Many of the project's outputs and outcomes in this project—such as ancillary infrastructure of the small-scale infrastructure—were linked to other ministries such as agriculture, fisheries and forestry. Better collaboration would have helped in clarifying the roles and responsibilities of the ministries.

3. Projects implemented in vast geographical areas could benefit from regular supervision by local consultants. The activities in this project were spread over a geographically vast area. The logistics of supervision by a single consultant proved to be very challenging. To mitigate the risks and manage the complexity, the project could have been strengthened with local consultants visiting the sites regularly and providing guidance to the Project Management Team.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR is well-written and evidence-based. The ICR is candid in discussing the environmental and social issues encountered during implementation. It is also honest in acknowledging the shortcomings in supervision. The various parts of the reports are well integrated. The ICR is consistent with the guidelines, both with respect

to ratings and the performance narrative. One shortcoming in the ICR is needless repetition in different parts of the text.

a. Quality of ICR Rating
Substantial