

SOCIAL DIMENSIONS OF PWALUGU DAM

The social implications and considerations for Pwalugu Dam to achieve its potential to contribute to the economic transformation of North-east Ghana.

For Pwalugu Dam to achieve its potential, its social dimensions will need to be very carefully planned; ensuring that it learns from earlier irrigation/dam projects in Ghana; and it will need to adopt international best practices for affected community compensation and livelihood restoration.

In addition, decisions about community integration, the size of agricultural plots, spatial planning to ensure economic diversification and jobs for the next generation and other social aspects will need to be carefully made.

Negatively affected households need to be properly compensated for their loss of assets (and sometimes other 'costs') and provided with new livelihood opportunities which, at the very least, restore their post-scheme income to its pre-scheme level. This requires a long term approach.

The success of livelihood restoration for affected communities depends in large part on the successful development of the irrigation scheme as a whole and this is just as dependent on the governance system for land and agricultural production, as it is on the infrastructure design.

The review of governance, land and agricultural production needs are critical to improving the livelihoods of affected people

Yet the assessment of these needs is significantly less advanced than the review of new infrastructure needs, despite them being an equally essential component of any successful irrigation scheme.

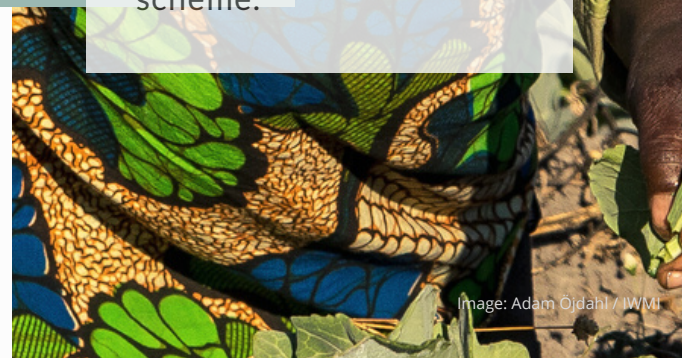




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Main recommendations

- Offer secure land rights of at least equivalent tenure security to those held in customary lands. A model contract/agreement for small holders should lay out security, disposal rights, provision for fees, sanctions, and a grievance mechanism.
- Offer smallholders plot sizes of at least 3 ha with flexible tenure conditions to ensure economic viability of family farming.
- Ensure resettled people can generate improved livelihoods, have access to the necessary components for irrigated agricultural production (e.g. high quality seeds, fertiliser, accessible credit schemes, traction, harvesting, processing equipment, markets) and transitional support.
- Identify most appropriate form of traction. If it is oxen, ensure pastoral systems are maintained locally.
- Decide the future of extensive livestock rearing in and around the irrigation scheme as a grazing resource, identify where cattle will drink and potential obstacles to cattle movement. Consider including accessible cattle drinking points along canals.
- Consider implications of the 87% water security for irrigation on year to year crop choices, prioritisation between farmers. as well as possible insurance schemes to protect farmers from significant losses in dry years.
- Dissociate women's rights and their compensation from those of men in the Resettlement Action Plan and avoid entrenching gender inequalities.
- Ensure communities resettled by the dam reservoir receive electricity in their new settlements.
- Assess the risks of flood damage to irrigation infrastructure in the floodplain - determine acceptable level of risk (e.g. 1 in 100 year, or 1 in 50 year flood damage). Small scale farmer-led irrigation, without significant infrastructure, may be a better option in more flood-prone areas than high protection dykes, particularly if a viable flood insurance scheme is available.
- Facilitate a local urban hub (ideally a low agricultural quality plot at the centre of the scheme) paying attention to urban planning and road networks as well as to irrigation scheme design and planning.
- Consider how best to promote diverse rural incomes (linked to land and resource availability and allocation) and the hub considerations above.
- Draw up an agreement with local government about which services/responsibilities they will take over, when that will occur and which additional resources they will receive (e.g. farmer rents, local taxes, share of HEP revenue).
- Support local chiefs to ensure they understand the legal situation (lands tribunal and commission) and can play their role in land management, and compensation and allocation effectively throughout the expropriation and re-allocation process.
- Establish a benefit-sharing fund, fed by part of the revenues from hydropower sales, to improve livelihoods of affected people in the medium to long term.

Affected people

- Households who lose houses and/or agricultural land to the reservoir
- Households who see their grazing or farmlands converted to irrigation areas
- Other rural people who lose access to their traditional lands and resources as these are converted to irrigation areas



Image: Axel FaSsio/CIFOR

Introduction and context

Does the understanding of the local context and the current planning documents give confidence that affected people will be better off as a result of the development?

The success of livelihood restoration for affected communities depends in large part on the successful development of the irrigation scheme as a whole. It is the economic success of the overall system that will see the emergence of resilient credit schemes, viable markets for inputs and agricultural products, transformation services and payment of irrigation fees to ensure long term operation and maintenance of the irrigation scheme as a production unit. Resettled and other affected people will therefore depend, wholly or partly, on the State scheme governance system for their livelihoods.

The greatest benefits, and probably the largest number of beneficiaries, should occur when the local economy is driven by the increased productivity created by (successful) irrigation. These broader economic and spatial planning topics are briefly considered below. However, large scale irrigation schemes present a number of challenges and any missing component may compromise the achievement of the overarching goal of reducing poverty while increasing national food security. The conditions required for irrigation schemes to deliver reduced poverty and increased food security, based on studies in Senegal, Mali and Burkina are outlined in the Figure below:

Main technical features (Tractebel analysis) based on the government's decision to proceed with a dam at 165m, as agreed by parliament:

- Layout: main dam (FSL=165 masl) + irrigation weir
- Irrigated area: 20,000 Ha
- Dam height above river bed: 35 m
- Crest length: 1,863 m
- Total reservoir area: 352 km²
- Total storage: 2,622 Mm³
- HPP installed capacity: 59 MW
- Indicative cost: US\$ 287M

Involuntary resettlement: 445 households

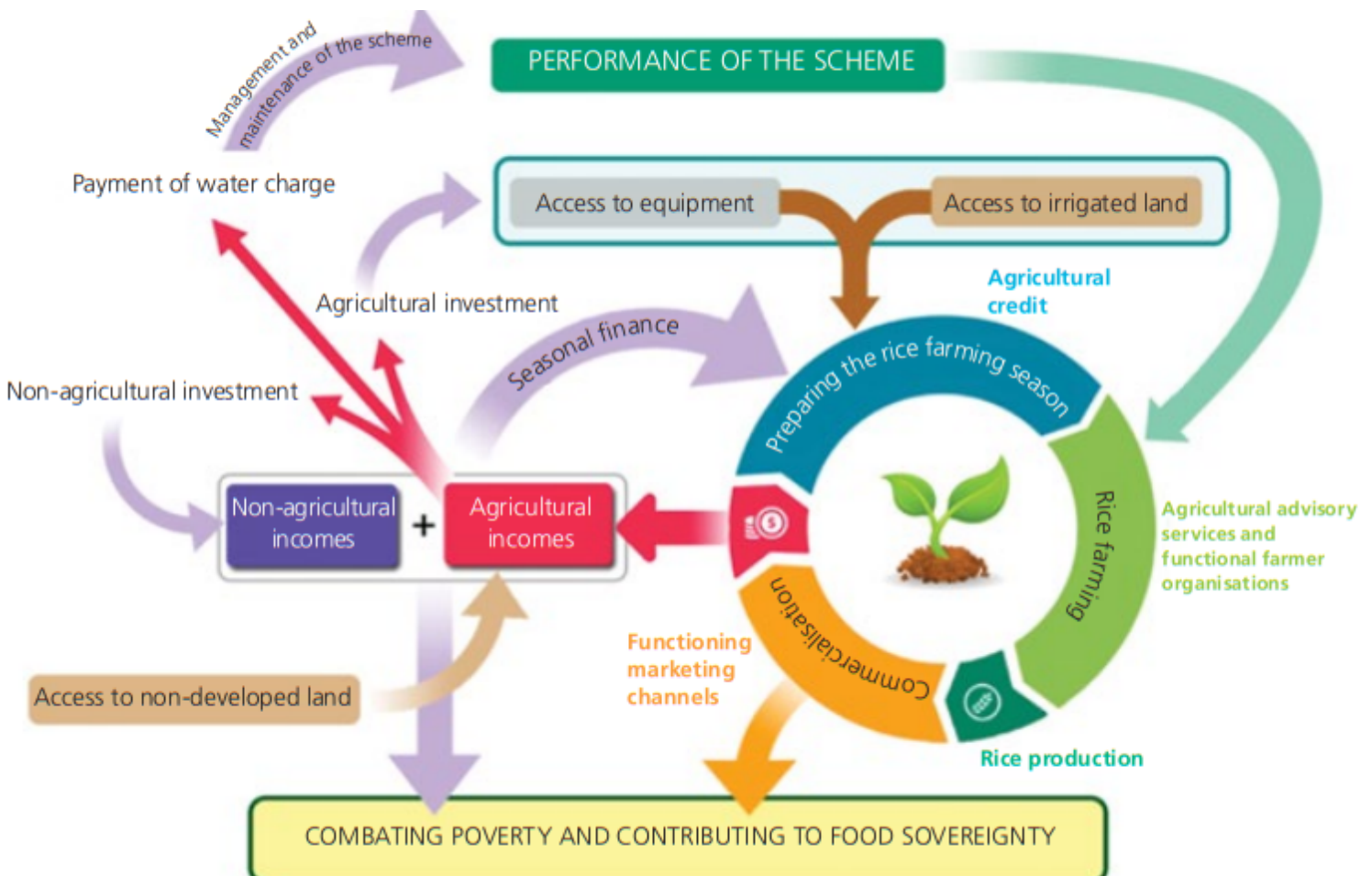




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Land compensation and livelihood restoration

A long term approach is necessary to ensure affected households are properly compensated and can benefit from new livelihood opportunities which, at the very least, restore their post-scheme income to its pre-scheme level.

Best international practice now proposes sustained financial support from the project over the entire lifetime of the dam in the form of benefit sharing to prevent the resentment from affected communities on the impacts to their development opportunities - as is the case at Akosombo. It has proved illusory to expect that communities can re-establish their livelihoods in a short time period of investment.

Compensation, land leases and secure rights, animal or mechanised traction, plot size, electricity supply and gender issues are all important considerations to be assessed by project managers through a secure and transparent process.

Water management and irrigation

For irrigation, managers will need to decide how the system should be managed in times of scarcity and should be realistic about economic model vs. real world experience of average production. Constraints in water supply will affect user prioritisation and crop choices: risk to farmers should be clearly communicated.

Experience from elsewhere in West Africa suggests that an unexpected lack of irrigation water leads to significant farmer income losses, inability to pay

back loans (and therefore no opportunity to invest in the following seasons) and mistrust in the governance quality and risk management of the irrigation area managers. In many cases, farmers are reluctant, or unable to pay fees, which has a knock on effect on scheme maintenance. Water shortages will only occur at Pwalugu once the entire system is completed, depending on the phasing adopted.

Spatial planning

The scheme will prompt significant urban development - this should occur within or close to the irrigation scheme area, to help guarantee the long-term viability.

A risk management framework for irrigation area development is essential. Irrigation development in the floodplain could cause loss of life and major damage to expensive irrigation infrastructure if not well managed.

Analysis of rural economies in West Africa illustrates the importance of diversification in ensuring multiple income streams for household well being, as well as building their resilience to particular unexpected shocks.

Local government will need sufficient resource to manage the externalities of the project, (e.g. new roads and maintaining drinking water supplies) and to accompany the central government authorities in the design process.

Conflicts between pastoralists and due to damage to crops and the lack of clear corridors for livestock movement may be an issue, exacerbated by the development.

Irrigation phasing

There are two inherent tensions with phasing: economic losses linked to construction rates and risk of failure to adapt to new practices because new systems are slow to establish. This creates pressure to build quickly - managers need significant resources to support farmers to adapt, else risk distrust of the governance system and abandoned fields. The resources needed should be reviewed.

Note that the feasibility studies' proposed phases do not have clear demonstrations of financing or time scales and have ambitious construction rates.

Future DAMS

Design and Assessment of
water-energy-food-environment
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FutureDAMS is a research project funded by UKRI as part of the Global Challenges Research Fund. The consortium is working to improve the planning and governance of water-energy-food-environment systems by developing the knowledge base, tools and approach to enable resilient and sustainable development in a warming world.

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