

Climate & Environment  
Assessment: Support to  
Political Transition in Yemen



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## Report Summary

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Evidence on Demand was requested by DFID to carry out a climate and environmental appraisal as part of the Business Case for Support to Political Transition in Yemen. This programme aims to contribute to a stable and secure Yemen through seeing that Yemen's democratic transition is successfully implemented in a peaceful and inclusive manner. The consultant developed and completed the draft climate and environmental assessment by identifying high-level climate and environmental impacts/opportunities. In doing so, it was recognised that security, health and economic issues are likely to be the highest priorities right now for Yemen but the dependence of the economy on natural resources means that environmental and rural development issues should also be prioritised.

*Note to readers: Climate and Environment Assessments are used to ensure that climate and environment risks and opportunities are considered as part of the process in developing new DFID Business Cases. The CEA presented here is in draft form, as submitted by Evidence on Demand to DFID for quality assurance and approval by a DFID Climate & Environment adviser.*



# Climate & Environment: Background & Relevance of Interventions

## Background

Yemen, one of the least developed countries in the world and one of the poorest in the Middle East and North Africa (MENA) region, faces significant political and development challenges, including sustaining the economy in the face of rising oil prices, declining water resources and uncertain climate conditions. The country's geography is very diverse with semi-arid mountainous highlands and the Tihama coastal plain in the west, arid hills and desert in the centre and east of the country. The climate is highly variable from season to season and year to year and the country can occasionally be affected by cyclone activity from the east. As such the country is affected by both flash floods and droughts and longer term land degradation and desertification.

Yemen's rural economy is a key part of the national economy, is essential for maintaining food security and is highly vulnerable to climate variability and change due its dependence on water resources. Recent flash floods in the Hadramout Region destroyed farmland, killed livestock, destroyed houses, contaminated water wells and caused hundreds of fatalities<sup>1</sup>. Overall damage was estimated as equivalent to 6% of Yemen's GDP<sup>2</sup>. Severe droughts have also contributed to the displacement of people from rural areas to the capital Sanaa, resulting in the abandonment of mountainous villages and traditional water management systems that need to be maintained to avoid land degradation.

Agriculture is a key economic sector that employs half the labour force and uses 90 % of the available water resources. Around half of all agriculture is rain fed (located in the highlands) while 40 % is reliant on groundwater sources that are being abstracted at an unsustainable rate. Sanaa, is also heavily reliant on groundwater abstracted at increasing greater depths for public water supply. It is too high and too far from the coast to utilise seawater desalination and the overall water resources situation is unsustainable in long term.

## Climate change risks

Rates of warming greater than the global average are anticipated in Yemen, there is considerable uncertainty related to future changes in rainfall. Recent impact assessments have projected warming of between 1 and 4.5°C by 2100 and a spread of changes in rainfall from large positive increases (+45 %) to negative changes (-46 %) for different time periods and scenarios.

The major impacts of climate change are likely to be due to changes in the magnitude or frequency of floods and droughts but there have also been studies on the impacts on biodiversity and ecosystem services and on the coastal zone, some of which is threatened by rising sea levels and warmer waters (fisheries). Yemen is one of the 9 single-country pilots under the Pilot Program for Climate Resilience (PPCR), which aims to trial and demonstrate ways in which climate risk and resilience may be integrated into core development planning and promote transformational change<sup>3</sup>.

<sup>1</sup> HR Wallingford. 2010. Climate change impact assessment on the agriculture and water sectors, Republic of Yemen. Study completed for the World Bank.

<sup>2</sup> World Bank estimate quoted in climate change Pilot Programme for Climate Resilience (PPCR) documents.

<sup>3</sup> World Bank. 2010. Yemen - Assessing the impacts of climate change and variability on the water and agricultural sectors and the policy implications. Washington D.C. - The World Bank.



## Adaptive capacity

The ‘adaptive capacity’ of Government of Yemen (GoY) ministries is most important for the management of current and future climate risks. Some progress was being made through UNDP and World Bank studies prior to the conflict in 2011. More recently, an Inter-Ministerial Committee on Climate Change was formed to support the implementation of the PPCR<sup>4</sup>. An improved capacity would include awareness of climate risks, leadership in tackling serious environment issues around water scarcity and water allocation, better collaboration between ministries and an improved ability to respond to natural disasters. The key ministries include Environment Protection Authority, the Ministry of Agriculture and Irrigation, the Ministry of Planning and International Cooperation (MOPIC), the Agricultural Research and Extension Authority, the Civil Aviation and Meteorological Authority and the National Water Resources Authority.

Any action to improve:- the overall governance and/or dialogue, functioning of the civil service, collaboration between ministries and dialogue with civil society organisations affected by climate and environmental stresses, should have indirect positive impacts on the GoY’s capacity to respond to natural disasters and adapt to climate change. However, it is important for climate change and environmental issues to be sufficiently high on the agenda and for the key ministries to be adequately resourced to deal with large “adaptation deficit”. Significant investment is needed to improve the food and water security situation in Yemen, for example in managing the demand for water supplies for agriculture using both traditional and modern irrigation techniques.

An enhanced PMO and improved dialogue, as proposed, are likely to rebuild and strengthen the capacity of ministries. The only concerns related to the proposals are that none of the key ministries are direct beneficiaries. It is therefore recommended that the opportunity is taken (as part of this intervention of other DFID activity in country) to ensure that environmental and climate change issues are at least included and ideally ‘mainstreamed’ into Government Strategy, and that the PMO plays a key role in this process.

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<sup>4</sup> <http://documents.worldbank.org/curated/en/2010/04/13155445/yemen-assessing-impacts-climate-change-variability-water-agricultural-sectors-policy-implications>  
<http://menablog.worldbank.org/meeting-challenge-climate-change-yemen>



# Climate & Environment Sensitivity Analysis

## What is the likely impact (positive and negative) on climate change and environment for each feasible option?

Categorise as A, high potential risk / opportunity; B, medium / manageable potential risk / opportunity; C, low / no risk / opportunity; or D, core contribution to a multilateral organisation.

Option	Climate change and environment risks and impacts, Category (A, B, C, D)	Climate change and environment opportunities, Category (A, B, C, D)
1) Support National Dialogue/Constitution consultations only	C	C
2) Support the NUG's Capacity to Deliver the Transition only	C	B
3) Support both the Constitution Revision consultation processes and NUG institutional capability to deliver the transition	C	B
4) Counter-factual: Do not support national constitution processes the Political Transition	B	C
<b>Delivery options</b>		
a) Delivery through multi-donor UN-led programmes (UN DPA and UNDP)	C	C
b) Delivery through non-government and private sector suppliers	C	C

## Interventions impact on climate and the environment

The interventions proposed are unlikely to impact on climate change mitigation or negatively on the environment. However some feasible options should indirectly raise the capacity of the Government to adapt to climate change and deal with environmental shocks and disasters. This is particularly the case for the capacity building options (2) and (3) and there is an opportunity to raise climate change adaptation up the agenda (if this is deemed appropriate given the pressing security issues).





## Sensitivity of intervention to climate and environmental conditions

It is possible, but unlikely in the short term, for major environmental disasters like floods or drought to damage the economy, decrease food security and increase migration to cities. They may affect the security situation and lead to further political unrest. The major floods in 2008 had a return period of 1% (ie 1 in 100 years) or less, which means there is a small chance that other large floods could occur at any time displacing people and damaging the economy at a time when economic growth is needed.

### Opportunities

In order to realise the benefits of this intervention with respect to climate and environment issues some feasibility criteria could be considered, as follows:

#### Potential feasibility criteria

1. The PMO supports the All Ministerial Committee on Climate Change. (Measured by attendance at meetings, directing ministries to collaborate, directing the ministries to share data and so on)
2. The PMO mainstreams climate change into its development planning . (Measured by recognition of environment and climate issues and their links to development in plans and as part of the national dialogue)

Practical ways of mainstreaming climate change at the highest level include:

- Including climate change (mitigation and adaptation) in national development strategy
- Allocating resources to promote water and food security, e.g. sufficient funding and mandates for the relevant line ministries
- Promoting donor coordination and alignment to national climate adaptation and water objectives
- Screening policies and major investments to check that they will perform well under different climate conditions (requires simple climate screening tools)<sup>5</sup>
- Providing advice on how to include climate change adaptation in national planning and adequate resources (experts, staff time) for working with the EPA and other relevant line ministries

It is recognised that security, health and economic issues are likely to be the highest priorities right now but the dependence of the economy on natural resources means that environmental and rural development should also be prioritised.

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<sup>5</sup> Adapted from GWP/AMCOW. 2012. Water Security and Climate Resilient Development: Strategic Framework. Policy Brief No. 1.