

# Natural Gas Infrastructure and Local Communities in Sindh:

A Case of Three Settlements in Sanghar District



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# Natural Gas Infrastructure and Local Communities in Sindh:

## A Case of Three Settlements in Sanghar District

Pakistan is a resource-rich country and the energy sector – driven on the back of fossil-fuel based solutions - has played a major role in fuelling economic growth and development. Extraction of oil and gas requires huge capital, sophisticated technology and highly skilled labour. The first beneficiaries of the extraction are thus the investors, the operating companies and the management (national or global corporations). The larger beneficiaries are the industries and the households, mainly located in urban and industrial areas across the country. Local population living in hydrocarbons-producing regions in Pakistan do not benefit from natural resources lying under their feet and being extracted by outsiders which include provincial and federal governments.

**Instead of getting any benefits, local communities living in areas close to oil and gas production sites tend to suffer pollution of water resources, destruction or loss of their habitat and diminishing of sources of livelihood.**

Local economy and local living conditions at many production sites have remained stagnant for decades. The population living in districts with high endowment of natural resources suffer multiple socio-economic deprivations, particularly in the areas of education, health, and employment.<sup>1</sup>

While the dominant narrative in the energy sector, particularly in oil and gas development, is built around probing of technical aspects, scrutiny and analyses of energy production and its benefits, very little documentation in Pakistan captures the experiences of the local communities vis a vis oil and gas industry. Many resource-rich countries make efforts to improve the local economy by leveraging linkages to production projects. The value brought to the local, regional or national economy from an extraction project is referred to as the “local content”.<sup>2</sup> This snapshot study attempts to touch upon the lack of local content in the context of three settlements in the area close to gas fields in Sanghar District Sindh.

<sup>1</sup> Naveed A & Khan S.A., Natural Resource Endowment and Geography of Poverty in Pakistan, Research Brief April 2018, PPAF, <https://www.pfaf.org.pk/doc/PolicyBriefs/Natural%20Resource%20Endowment.pdf>

<sup>2</sup> Review of Local Content: Strengthening the Local Economy and Workforce. 2015. National Resource Governance Institute. March 2015. [https://resourcegovernance.org/sites/default/files/nrgi\\_Local-Content.pdf](https://resourcegovernance.org/sites/default/files/nrgi_Local-Content.pdf).

**SECTION**

**1**

**INTRODUCTION**



## INTRODUCTION

Natural gas, the main fossil-fuel produced domestically, has played a major role in the energy matrix of Pakistan since the first large reserve was discovered in Sui, Balochistan, in 1952. In subsequent decades, significant gas fields of smaller sizes were discovered and made operational in the provinces, particularly in Sindh. Natural gas is consumed by several sectors – power generation, fertiliser and other industries and households. Pakistan's reserves have fast depleted due to poor strategic planning and gross underpricing of gas for the household sector which led to excessive consumption and wastage of the fuel.<sup>3</sup> Today, natural gas contributes 33.1% to Pakistan's energy mix compared to 50.4% in 2005-06.<sup>4</sup> Meanwhile, exploration and drilling of natural gas wells continues. In the year 2020, drilling efforts resulted in ten discoveries, mostly of gas condensate.<sup>5</sup>

Natural gas is considered a relatively clean fossil fuel. Though it emits less carbon, natural gas emits methane, an extremely potent greenhouse gas potentially hazardous to the environment and humans. Exploration, drilling and production of natural gas affects the environment and the surrounding habitat. Vegetation and soil of the lands are disturbed. Drilling produces air pollution and seismic tremors that can have adverse impact on people, water resources and wildlife in the surrounding areas. Laying

pipelines to transport natural gas from wells requires clearing the designated lands and digging to bury the pipes. Natural gas production also produces large volumes of contaminated water, called "produced water", in addition to air pollutants and noise.

A look at the existing data suggests dominance of information on technical and economic aspects of natural gas production, i.e., investments, returns, consumption, and market analyses, etc., have been produced in the last decades. However, documentation and analyses of the social impact of gas infrastructure on the communities inhabiting the upstream, midstream and downstream sections of the gas production ecosystem is scant. Communities experience environmental degradation, water pollution, health and safety risks, often destruction or depletion of their livelihood sources, or displacement from their native settlements. Aside corporate annual reports, policy documents and technical papers, which contain exclusive sector-specific information, no holistic documentation exists to throw light on the impact of gas infrastructure on the local communities. Environmental and social impact assessment reports of the projects are difficult to access as few are made publicly available. Media coverage of the communities only ensue in case of disasters.



*Natural gas emits methane, a potent greenhouse gas potentially hazardous to the environment and humans.*

*Photo courtesy: Business Recorder/File*

<sup>3</sup> "LNG Sector in Pakistan: Attaining Sustainability through Deregulation and Structural 3 Reforms." 2021. State Bank of Pakistan Second Quarterly Report 2020-2021.

<sup>4</sup> "Economic Survey of Pakistan 2006-07." 2007. Ministry of Finance, Government of Pakistan. <https://www.finance.gov.pk/survey/chapters/15-Energy.pdf>.

<sup>5</sup> 2021. Pakistan Energy Yearbook 2020, Hydrocarbon Development Institute of Pakistan.

## OBJECTIVES

This paper aims to explore the impact of the expansion of gas infrastructure on indigenous communities, focusing on three settlements around Sanghar gas fields in the Sindh province of Pakistan.

The objective is to bring into perspective the most vulnerable of the stakeholders i.e. the communities. The paper probes how drilling, extraction, processing, storage and distribution of natural gas impact the environment and the lives and

livelihoods of the surrounding communities, and what benefits it accrues to the communities, if any. The paper also reflects on the provincial and federal governments' rules and regulations, and the Corporate Social Responsibility (CSR) mandates of the companies involved in gas production vis-à-vis welfare activities and mitigation of risks to biodiversity and health and livelihoods of the communities. Recommendations are put forth for better mitigation, documentation and monitoring of impacts.



*Processing of gas requires separating all hydrocarbons and fluids from the pure natural gas which takes place at a processing plant located near the wells. Photo courtesy: Reuters/File*

## METHODOLOGY AND LIMITATIONS

The paper is based on desk research and qualitative data collection through focus group discussions (FGDs) with community representatives in three settlements in tehsils Sinjhor and Tando Adam. Official documents, relevant rules and regulations, CSR policies and other reports of the companies were accessed electronically and through websites of the corporations.

Due to time and other constraints, only three settlements were visited and information accessed from a total of 35 community members who were all male. The visits were made in the month of May 2022. Women of the communities could not be approached as the team lacked a female researcher. The selection of the communities was based on the old contacts that the The Knowledge Forum researchers have maintained since the last many years of experience of work in the area.

SECTION

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CONTEXT



## GAS INFRASTRUCTURE, OPERATORS AND DISTRIBUTORS

Pakistan has a well-developed and integrated gas infrastructure operated by a number of public and private corporations.

Its natural gas pipeline system comprises 13,315 km transmission, 149,715 km distribution and 39,612 km services gas pipelines.<sup>6</sup> There are a number of national and global gas producers operating in Pakistan. The Oil and Gas Development Company Limited (OGDCL) is the largest producer, followed by the Pakistan Petroleum Ltd. (PPL), and Mari Petroleum Co. Ltd. (MPCL).<sup>7</sup>

The leading gas distributors are Sui Southern Gas Company (SSGC) and Sui Northern Gas Pipelines (SNGP) in the public utilities sector. In Sindh, public sector entities OGDCL, PPL and MPCL dominate the scene. International companies such as Union Texas, OMV, BHP, ENI, Premier, Petronas, Tullow Oil, etc., have discovered oil and gas fields in lower Sindh.<sup>8</sup> The Government Holdings (Private) Limited (GHPL), operating since 2000, covers Upper Indus Basin, Middle Indus Basin and Lower Indus Basin.<sup>9</sup> The OGDCL and United Energy Pakistan Limited (UEPL) are active in Sanghar District.

## THE PROCESS: EXPLORATION, DRILLING, PRODUCTION AND DISTRIBUTION

Production of gas involves a number of steps: exploration, appraisal, development of wells, production/processing plants and storage facilities, laying transmission pipelines, road infrastructure, and finally the permanent plugging, or dismantling of all infrastructure and abandonment which takes place when the reserves are exhausted. Exploration of the area requires acquisition of reconnaissance permit and exploration license. After establishing an initial interest in a particular area, the company acquires the lease from

the landowner.<sup>10</sup> All these processes are regulated through a number of provincial and federal laws in Pakistan.

Natural gas exists in mixtures with other hydrocarbons. Processing of gas consists of separating all hydrocarbons and fluids from the pure natural gas which takes place at a processing plant located near the wells. The extracted natural gas is transported to these processing plants through a network of pipelines interconnecting the processing plant to more than 100 wells in the area.<sup>11</sup>

## IMPACT ON ENVIRONMENT

The drilling and extraction of natural gas from wells and its transportation through pipelines result in the leakage of methane, primary component of natural gas which is 80 times more powerful than carbon dioxide as a warming gas on a 20-year timeframe.<sup>12</sup>

During drilling, the rock cuttings, which are contaminated with toxic drilling fluids, are discharged into the lands. Also, produced water contaminated with crude gas is discharged or injected in the underground formation.<sup>13</sup> The transportation infrastructure — laying of the transmission

<sup>6</sup> Economic Survey of Pakistan 2020-21." 2007. Ministry of Finance, Government of Pakistan., [https://www.finance.gov.pk/survey/chapters\\_21/14-Energy.pdf](https://www.finance.gov.pk/survey/chapters_21/14-Energy.pdf)

<sup>7</sup> M. Naeem Ghouri, FCA. 2018. "Exploration and Production Industry in Pakistan." The Institute of Chartered Accountants of Pakistan, <https://www.icap.org.pk/paib/pdf/guidelines/GuidelinesEP2018.pdf>

<sup>8</sup> Ibid.

<sup>9</sup> "Exploration & Production." n.d. Government Holdings (Private) Limited. <https://www.ghpl.com.pk/Exploration-Production>

<sup>10</sup> Niazi, Kabalan, and Tarmohamed Jameel. 2012. "Pakistan: Overview of the Oil and Gas Regime in Pakistan." Edited by Clyde & Co LLP. Mondaq, February 2012. <https://www.mondaq.com/oil-gas-electricity/164894/overview-of-the-oil-and-gas-regime-in-pakistan>

<sup>11</sup> "Processing Natural Gas." n.d. Naturalgas.org. <http://naturalgas.org/naturalgas/processing-ng/>

<sup>12</sup> "Global Gas Flaring Reduction Partnership: Gas Flaring Explained." n.d. The World Bank. <https://www.worldbank.org/en/programs/gasflaringreduction/gas-flaring-explained>

<sup>13</sup> Adebayo AR, Tawabini B (2012) Hydrocarbon Exploration and Production- a Balance between Benefits to the Society and Impact on the Environment. J Pet Environ Biotechnol:122. doi:10.4172/2157-7463.1000122 <http://dx.doi.org/10.4172/2157-7463.1000122>



pipelines – cuts through ecosystems displacing plants and animals. Often these pipelines pass through land owned by private persons. In case of Pakistan, these are big landlords or small landowners.

In the process of exploration, a large quantity of wastewater called “produced water” is generated as a result of hydraulic fracturing or “fracking”, a technique of extracting gas from shale rock. This water is released into specially constructed ponds or nearby located natural ponds. During pond storage, the produced water overflow infiltrates and percolates into surrounding soil and aquifers, affecting the water quality.<sup>14</sup> Seismic tremors due to drilling and noise pollution disturbs the human community and the fauna in the surrounding areas.

Gas flaring, or the burning of natural gas, is associated with oil extraction. This flaring coming out of the chimneys is

another big hazard to the environment. According to an estimate, thousands of gas flares at oil production sites worldwide burned approximately 144 billion cubic meters of gas in 2021.<sup>15</sup> The methane emissions resulting from the inefficiency of the flare combustion contribute significantly to global warming. Extreme weather events (i.e., heat waves) are directly linked to fossil fuels that release heat-trapping gases into the atmosphere.

As the industry uses inflammable/combustible products, the health, safety and environment (HSE) aspect is very important. The companies must have robust and transparent HSE policies and procedures. Under Pakistan’s regulatory framework, the Initial Environment Examination (IEE) and Environment Impact Assessment (EIA) studies are mandatory prior to initiating new projects.<sup>16</sup>

## IMPACT ON LOCAL COMMUNITIES

Exploration, drilling, extraction and processing of gas have adverse impact on habitat and the communities living in the surrounding areas. Drilling projects operating round the clock generate pollution, disrupt wildlife, damage lands and fuel climate change. Air pollution from fossil fuels is termed as the ‘invisible killer’. It can lead to respiratory, cardiovascular and other diseases. People who live near oil and gas producing areas experience higher incidence of poor pregnancy outcomes (birth defects, preterm birth, and still birth), cancer, respiratory and cardiovascular problems, and asthma exacerbation.<sup>17</sup>

A number of other health risks to nearby communities accrue through the contamination of drinking water sources

with hazardous chemicals used in drilling and fracturing wells, and processing and disposing of wastewater. Naturally occurring radioactive materials, methane, and other underground gases sometimes leak into drinking water supplies from improperly cased wells. The large volumes of water used in the production may lead to water shortage in some communities. There have been documented cases of groundwater being contaminated with fracking fluids and gases near gas sites. These also include methane and volatile organic compounds. One major cause of gas contamination is poorly constructed wells that lead to gas leaks from the well into the groundwater.<sup>18</sup>

<sup>14</sup> Ibid.

<sup>15</sup> “Global Gas Flaring Reduction Partnership: Gas Flaring Explained.” n.d. The World Bank. <https://www.worldbank.org/en/programs/gasflaringreduction/gas-flaring-explained>

<sup>16</sup> Union of Concerned Scientists. 2014. “Environmental Impacts of Natural Gas.” Union of Concerned Scientists. June 19, 2014. <https://www.ucsusa.org/resources/environmentalimpacts-natural-gas>.

<sup>17</sup> Brian, Palmer. 2021. “Natural Gas 101.” <https://www.nrdc.org/Stories/Natural-Gas-101>. November 15, 2021.

<sup>18</sup> Ibid.

## REGULATIONS RELATING TO COMMUNITY WELFARE AND ENVIRONMENT

The regulatory framework of the oil and gas industry in Pakistan is considered 'well-developed' as it attracts and benefits the exploration and production companies by providing a predictable ground to work. In contrast to a plethora of rules and regulations concerning various aspects, there are fewer legislative pieces with a couple of clauses that address the issues of community welfare and environmental management either directly or indirectly. The Petroleum Exploration and Production Policy 2012 has a clause (4.1.4) on local employment, training and social welfare. The Model Petroleum Concession Agreement 2013 has two related clauses: Article 17 covering Training

and Employment; and Article 29 covering Protection of the Environment. The Model Offshore Production Sharing Agreement 2003 was revised in March 2022 proposing an upward revision in existing incentives.<sup>19</sup> Its Article II, 2.12f, makes it mandatory to take "necessary measures for consideration, safety of life, property, crops, fishing and fisheries, navigation, protection of environment, prevention of pollution and safety and health of personnel". Article XIX relates to Training and Employment, and Article XXX covers Protection of the Environment.<sup>20</sup>



*Image of a gas production plant. Photo courtesy: SSGC/File*

<sup>19</sup> Ghumman, Mushtaq. 2022. "Exploration of Oil, Gas: Body Formed to Fine-Tune Model Production Sharing Agreement Draft." Brecorder. March 16, 2022. <https://www.brecorder.com/news/40161044>.

<sup>20</sup> Model Production Sharing Agreement Revised 2022

## DATA PRODUCTION, TRANSPARENCY AND INFORMATION SHARING

Due to highly technical nature of the sector, the data generated on different aspects, at every step of the production, are enormous and complicated. This data is mostly meant for the immediate stakeholders i.e. the oil and gas producers and fiscal policymakers. However, there are other stakeholders which include local communities, civil society, researchers and academics, media and the society at large. The producers – national and international corporations – and the state institutions (provincial and federal governments) who are responsible for regulation and monitoring of the sector, thus need to provide information to all stakeholders on topics considered critical for sustainability, such as impact on environment, health and safety, employment, local communities, governance and climate change.

Unfortunately, despite a strong legal framework on oil and gas exploration and production, there is almost complete lack of disclosure of information to the local communities about any aspect of the operations.<sup>21</sup> Instead of adhering to the basic principles of disclosure of information, Article 6.4 Confidentiality of Data and Records, Petroleum Exploration and Production Policy 2012, stipulates “All data is to be treated as confidential and may not be disclosed by the parties except as provided for in the agreement...”<sup>22</sup> Article XVIII, 17.4, of the Model Producing Sharing Agreement 2003, revised in 2022, stipulates that “All Data, information and reports obtained or prepared by, for or on behalf of, the Contractor pursuant to this Agreement shall be treated as confidential and ... a Party shall not disclose the contents thereof to any third party without the consent in writing of the other Party”.<sup>23</sup>

Data generated in the sector is difficult to access and has many gaps. The foremost source of data is the Pakistan Energy Yearbook published annually by the Hydrocarbon Development Institute of Pakistan (HDIP). The Yearbook is very rich in data and contains specific technical information on the country’s gas, oil, and coal reserves, details of

production, and lists of fields and operating companies. However, the names of the oil and gas fields do not indicate precisely the district, the tehsil, or the mouza, these are found in. These are instead indicated by Block, Grid Area and Section number, which are complicated categories for communities to understand and remember. Though most of the fields names are based on the names of the localities, many names are based on personalities of the areas.

The Yearbook also does not contain any information on settlements or villages in close proximity of the production plants and wells.

Energy sector plays a significant role in the country’s development. Oil and gas producers transfer considerable funds to the provincial and federal governments in the form of license fees, royalties, dividends, taxes and welfare funds for local communities. These revenues are meant to be spent on the citizens’ well-being, hence can be viewed as a ‘managed trust’ for citizens on the part of governments. The information on yearly revenues generated and meant for welfare activities is nowhere to be found in an integrated manner.

Another important aspect in the sector is about the ownership rights and the rental rate paid to the owners. Subsurface property rights of hydrocarbon reserves belong to the country. However, the surface land may belong either to the government (provincial or federal) or private land owners, who can be big landlords and/or small landholders with little assets. Information on landownership of each reserve, or block, should be made available to the stakeholders. Transparency is essential to promote citizens’ trust and to re-shape how natural resources are managed and who benefits. Information on how much revenue is being generated in the oil and gas sector must also be publicly accessible.

**Despite a strong legal framework on oil and gas exploration and production, there is almost complete lack of disclosure of information to the local communities about any aspect of the operations.**

<sup>21</sup> Brohi, S., Oil & Gas Exploration and Production in Pakistan: Issues in Legal Framework on Community Development & Environment, 2008, Participatory Development Initiatives & Oxfam, Karachi.

<sup>22</sup> Petroleum Exploration and Production Policy 2012. n.d. Ministry of Petroleum and Natural Resources, Government of Pakistan, <http://www.ppisonline.com/gov-policy/@dm!n/uploadImage/75/Petroleum-Policy-2012--Amended-Jan-2020.pdf>

<sup>23</sup> Offshore Production and Sharing Agreement. n.d. <http://www.ppisonline.com/gov-policy/@dm!n/uploadImage/58/Model-Production-Sharing-Agreement-2003.pdf>

## SECTION

3

## NATURAL RESOURCES AND RURAL POVERTY IN SINDH



In Pakistan, the total number of non-associated gas fields stands at 277.<sup>24</sup> Out of which, 235 are located in rural Sindh. In addition, there are 77 associated gas fields out of which 61 are located in Sindh.<sup>25</sup> Of a total 285 crude oil reserves in Pakistan, 238 oil reserves are located in the province. Fifteen companies (national and international) are involved in gas production and 12 companies in oil production in the four provinces.<sup>26</sup>

In Sindh, the first largest gas reserve Mari was discovered in 1956. Qadirpur and Miano gas fields were discovered in the 1990s. Since then the exploration, discoveries and production of oil and gas have continued. In 2013, PPL discovered gas and condensate over its exploration well Wafiq X-1, located in Sanghar district, Sindh.<sup>27</sup> New gas reserves were found in 2014 in Gambat, a South Sanghar district.<sup>28</sup> In July 2019, OGDCL discovered oil and gas reservoir in Pandhi, Sanghar.<sup>29</sup> In the last decade, the oil and gas sector has emerged as the single largest contributor to the country's exchequer. Revenue collection from seven

important oil and gas products in July to December 2019 amounted to Rs. 205 billion, indicating an increase of about 43.7% from the previous year.<sup>30</sup>

Sindh contributes 56% oil and 55% of Pakistan's daily gas production. Despite these significant resource endowments, Sindh's rural and semi-urban areas that lie close to oil and gas fields are underdeveloped, and the villages and settlements afflicted with poverty and deprived of civic facilities.<sup>31</sup> In 2016, the overall multi-dimensional poverty incidence in Sindh was found to be 43.1% while in the rural Sindh, the incidence of multi-dimensional poverty was 75.5%.<sup>32</sup> According to a 2021 analysis, Sindh is one of the provinces in Pakistan that has the highest prevalence of food insecurity, malnutrition and poverty. Around 3.1 million people (26% of the rural population) are estimated to be facing high levels of acute food insecurity in the province. In Sanghar district, 20% of the population is in Phase 3 (Crisis) and 5% in Phase 4 (Emergency) stages of multi-dimensional poverty.<sup>33</sup>

**Sindh houses majority of the "associated" and "non-associated" gas fields of the country. The province contributes 55% of Pakistan's daily gas production.**

## DEVELOPMENT BACKGROUND OF SANGHAR DISTRICT

With a population of 2,057,057, Sanghar is one of the largest districts in Sindh. It has six talukas or tehsils: Jam Nawaz Ali, Khipro, Sanghar, Shadadpur, Sinjhor, and Tando Adam, and 73 Union Councils.<sup>34</sup> Seventy-one percent of Sanghar's population resides in the rural areas and 29% resides in the urban areas. The district has six urban centres and 362 revenue villages.<sup>35</sup> Of total houses, 59.8% are katcha structures made of mud and thatch. Only 4% of the households own land; 41% have access to sanitation; and 61.2% use traditional three-stone stove for cooking, using wood or dung. Only 17.5% of the population has access to natural gas for cooking.<sup>36</sup>

Sanghar, an agro-based rural district is irrigated on the western side by two major canals i.e., Rohri and Jumrao. Eastern side is arid and does not have canal irrigation. Cotton is the main crop comprising 40% of Sindh's total cotton production. However, due to water-logging and land degradation, farmers are switching to rice-paddies. According to an estimate, 122 out of 341 ginning factories in Sindh are located in Sanghar.

Sanghar suffers from frequent flooding due to monsoon, breaches in canals and embankments, and the flawed Left Bank Outfall Drain.<sup>37</sup> The widespread environmental

<sup>24</sup> Non associated gas field refers to natural gas produced from a gas-targeted or natural gas well rather than an oil well. (Blackridge Research and Consulting). In contrast, associated gas is natural gas that is produced along with crude oil, and typically separated from the oil at the wellhead. (McKinsey Energy Insights)

<sup>25</sup> 2021. Pakistan Energy Yearbook 2020, Hydrocarbon Development Institute of Pakistan.

<sup>26</sup> Ibid

<sup>27</sup> Gas Discovery in Sanghar, Sui Southern Gas Company Ltd., July 19, 2013 <https://27www.ssgc.com.pk/web/?p=1940>

<sup>28</sup> Reporter, The Newspaper's Staff. 2014. "New Gas Reserves Discovered in Sanghar." DAWN.COM. August 5, 2014. <https://www.dawn.com/news/1123349>.

<sup>29</sup> "New Oil and Gas Reserves Found in Sanghar." 2019. Dunya News. July 25, 2019. <https://dunya.com/en/Pakistan/501992-New-oil-and-gas-reserves-found-in-Sanghar>.

<sup>30</sup> Kiani, Khaleeq. 2020. "Revenue from Oil, Gas Products Rises by 44pc." DAWN.COM. February 17, 2020.

<https://www.dawn.com/news/1534956>.

<sup>31</sup> "Poverty Reduction Strategy." n.d. Planning and Development Department, Government of Sindh. <https://pnd.sindh.gov.pk/storage/resourcePageXaScAszExMCKfDssSq1aNAGw2qfYewCT1RW10Sz.pdf>

<sup>32</sup> Multidimensional Poverty in Pakistan

<sup>33</sup> IPC Acute Food Insecurity Analysis, Mar-Sep 2021, Issued May 2021, 33

<sup>34</sup> Pakistan Population Census 2017

<sup>35</sup> Review of Sindh District Profiles 2021. n.d. Karachi: Planning and Development Department, Government of Sindh. <https://rtw.sindh.gov.pk/storage/resourcePageZiSxPP5AdFraqQMqF3LcXygeKDIGTGXFSn2RGid.pdf>.

<sup>36</sup> Ibid

<sup>37</sup> Topic, S. No. n.d. "Provincial Monsoon Contingency Plan 2020 1 St Draft Table of Contents." Gos.Pk. [http://www.pdma.gos.pk/new/Docs/CP\\_04-08-2020.pdf](http://www.pdma.gos.pk/new/Docs/CP_04-08-2020.pdf)

degradation has reduced the floodwater absorption capacity of the catchment regions and increased downstream vulnerabilities.<sup>38</sup> During floods, people and livestock are displaced, and WASH system frequently collapses. Livelihood resources and infrastructure are either damaged or destroyed. A large area of Sanghar (around 57%) is reported to be highly saline. Fire incidents, large or small, are reported every year affecting lives, properties and

infrastructure. The main cause of fire is industrial accidents, mishandling of gas, explosives, and household accidents.<sup>39</sup> Around 200 to 300 houses get ablaze every year, destroying assets and livestock. Vulnerability to various hazards is increasing due to the poor construction materials used for settlements; lack of institutional capacity to protect from hazards, lack of infrastructure and resources; environmental degradation, industrialisation, and air pollution.<sup>40</sup>

## OVERVIEW OF COMMUNITIES' CONDITIONS IN THREE SETTLEMENTS IN SANGHAR

The section presents information gathered from the field through focus group discussions designed around inquiries on communities' experiences of living in proximity of gas fields. Areas of inquiry covered impacts on the physical environment, water resources, health, employment opportunities generated by the gas processing operations, community development measures, and CSR by the companies involved. Alongside, an analysis of the situation is presented.

### FOCUS GROUP DISCUSSIONS:

Focus Group Discussions were conducted with community representatives in the village Ghulam Mohammad Thahim, Union Council Piro Lashari, Tehsil Tando Adam; and in

villages Pehalwan Rind and Gahi Khan Chang, UC Shah Mardanabad in Tehsil Sinjhor. Questions asked for the purpose of the report related to socio-economic status of the settlements (i.e., education, health, livelihood facilities); impact of gas producing infrastructure on health, environment, water resources and agriculture; employment and social welfare policies of the energy companies and political dynamics in the districts. Participants included primary school teachers, mosque imams, small landholders, wage workers, youth and community elders.

*The FGDs were held at:*

i) a madrassa; ii) in the field under a tree; and iii) in a primary school in the three settlements respectively.



*Male members of the impacted community in Sanghar speak about the issues they face following gas and oil exploration in the district.*

<sup>38</sup> Topic, S. No. n.d. "Provincial Monsoon Contingency Plan 2020 1 St Draft Table of Contents." Gos.Pk. [http://www.pdma.gos.pk/new/Docs/CP\\_04-08-2020.pdf](http://www.pdma.gos.pk/new/Docs/CP_04-08-2020.pdf)

<sup>39</sup> Disaster Risk Management Plan District Sanghar, District Disaster Management Authority, Sanghar,

<https://cms.ndma.gov.pk/storage/app/public/plans/October2020/ySlpdPrPn20RZDm420Sg.pdf>

<sup>40</sup> Ibid.

## SOCIO-ECONOMIC CONDITIONS:

The community representatives told the research team that the village Ghulam Mohammad Thahim has a population of around 1,800 to 1,500. There are only two primary schools. The students who want to continue their education have to enrol in secondary schools located in Tando Adam City. Few households own small landholdings. Majority of the people work as wage labour in agricultural fields – sugar cane, cotton, banana – or commute daily to the urban centre in search of wage work. Most of the houses are katcha.

The other two villages have a population of less than 1000. Each village has a primary school. The school in Gahi Khan Chang was in a very poor condition. Small landholders are fewer and own 2-7 acres of plots, running subsistence farming. Most of the people work on wages in nearby areas.

The roads leading to these villages are metalled but in poor condition as these have not been repaired since years. All three villages have electricity but there is no gas pipeline. The households rely on traditional cooking fuel such as wood, dung, and kerosene. According to the communities, Sui gas pipeline network is just 1.5 km away from this area but none of the villages has been supplied with gas though the companies are mandated to provide piped gas service to areas falling within 5 km distance of the plants/fields.

## NEARBY GAS PRODUCTION FIELDS:

Sinjhero gas field, or Sinjhero Block 2568-5, was discovered in October 2009.<sup>41</sup> The block consists of several small gas fields discovered in close proximity to one another. The Sinjhero conventional gas field recovered 51.62% of its total recoverable reserves, with peak production in 2017. Based on economic assumptions, production will continue until the field reaches its economic limit in 2041. The field currently accounts for approximately 1% of the country's daily output. The field is owned by Government Holdings (Private) (5%); Hashoo Group of Companies (19%); and Oil & Gas Development Co. Ltd. (OGDCL) (76%).<sup>42</sup>

Another gas field in the area, the Palli Field, Bobi Oil Complex in Tando Adam, located at around 35km distance from Sinjhero is operated by the OGDCL.<sup>43</sup> The other notable field in the area is Adam Field operated by the Pakistan Petroleum Limited and Mari Petroleum. With an area of about 395 square kilometres, the Hala block straddles Sanghar and Matiari districts. The first exploratory well in the block was drilled in 2007 which resulted in the discovery of gas condensate.<sup>44</sup>

The villages Pehalwan Rind and Gahi Khan Chang are located nearby these fields. The villagers did not know the exact name of the fields or wells in close proximity to their settlements. According to them, there are more than



Road sign for route to the Sanghar district.



Distant view of a gas field covered by fencing in the Sanghar district.

<sup>41</sup> "Oil and Gas Reserves Discovered in Sinjhero Block." 2009. Brecorder. October 9, 2009. <https://www.brecorder.com/news/3687205/oil-and-gas-reserves-discovered-in-sinjhoroblock-20091009970473>

<sup>42</sup> Carmen. 2022. "Sinjhero Conventional Gas Field, Pakistan." Offshore Technology. April 29, 2022. <https://www.offshore-technology.com/marketdata/sinjhero-conventional-gas-fieldpakistan/>

<sup>43</sup> "OIL & GAS DEVELOPMENT COMPANY LIMITED Bobi Oil Complex, District Sanghar, Sindh." n.d. Ogdcl.com. <https://ogdcl.com/sites/default/files/tenders/Web17Dec19-Palli.pdf>

<sup>44</sup> Hala Block, Pakistan Petroleum Limited n.d. Com.Pk. <https://www.ppl.com.pk/content/hala-field-overview>

70 wells in Sinjhor Block. Also, they shared that the fields and wells are often given code numbers by the companies and these are complicated.

The village Ghulam Mohammad Thahim is located near Naimat Basal, Naimat Basal 2X and Naimat West Fields. The Naimat Basal Well# 2 was spudded in 2010. After that, six more wells were discovered in the area and are still producing. These fields are operated by the United Energy Pakistan Ltd.<sup>45</sup> According to the participants, about 37 wells are producing gas and oil in the Naimat Field, while some wells have been abandoned.

### ELITE CAPTURE:

The participants in the FGDs observed that in all adjoining areas where oil and gas are produced, the companies make alliances with the areas' powerful political, social and spiritual leaders (wadera, pir, members national/provincial assemblies). This helps them with protection of their own interests and run business smoothly.

These local influentials, with political clout and power, are equal partners in the injustice meted out to the communities.

According to the communities, the companies in the area give petty civil works contracts to these influential persons who hire local people on meagre wages to execute these projects. It was shared that guards hired by the company to protect wells are the men attached/loyal to the influential persons.

According to the Royalty & Production Bonus Act 2015, a Social Welfare Development Committee is formed at the district level for utilisation of royalty and production bonus generated through oil and gas production. The Committee comprises the Member National Assembly (MNA) from the district, MNAs from other district, all Members Provincial Assembly of the district, and all Tehsil Nazims of the district. The Committee does not have any community or civil society representative, and/or development expert as members.<sup>46</sup> In such a committee, totally dominated by the political elite, it is possible that the voice of the local communities does not reach out.

### IMPACT ON ENVIRONMENT AND WATER RESOURCES:

The community members of the three villages shared

serious concerns over the adverse impact of gas production on the environment. According to the participants, natural gas distribution, transmission, and storage operations have polluted the air of the area and made the atmosphere hazier than it used to be. Flaring of gas, or fire that comes out from burning of gas in the wells, has raised the temperature of the area. Summers are hotter now. Adjacent to the Sinjhor Block, the OGDCL has put up a steel mill which emits smoke and fire 24 hours. Locals report that the emission from the mill has caused the temperature to rise further.

Several members shared that the chimneys constantly sprinkle a substance and leave everything in the surrounding area – tree trunks, stems, leaves, utensils, clothes – coated with a thin layer of a slimy liquid which damages the crops too. A member shared how the tremors induced by drilling shake the walls and roofs of their abodes. There have been incidents when the roofs got damaged or caved in.

The most severe concern raised by the communities related to water pollution. According to the residents of Ghulam Mohammad Thahim village, underground water has been polluted. It tastes bitter now and remains unfit for drinking. Before these companies came in to this area, underground water was sweet and drinkable. However, now the villagers have to make do with bitter water which is supplied to the village through hand pumps. According to the inhabitants, the problem was so acute that the community itself built a pipeline to bring sweet water from a nehar 12 kilometres away.

The inhabitants were aware of the fact that a large quantity of waste water is produced from fracking, which is damaging to the environment and the people. A participant said that a few years ago the company was draining the produced water in to specially built ponds, "but now this water is drained on to our lands".

Under Article 29 of the Model Petroleum Concession Agreement, the company is to employ advance techniques, practices and methods of operation for prevention of environmental damage. The company is also required to carry out two environmental impact studies: a baseline study, and a study to establish the likely impact of their operations on the environment, human beings, local communities, the wildlife and marine life in the area. The communities do not know about these specific rules and regulations; neither do they have access to the reports. They were, however, aware that it is the responsibility of the companies to prevent and mitigate the damage to the environment.

<sup>45</sup> Pakistan Energy Year Book 2020

<sup>46</sup> "The Royalty and Production Bonus Act, 2015" n.d. Gov.Pk. [https://na.gov.pk/uploads/documents/1429785586\\_525.pdf](https://na.gov.pk/uploads/documents/1429785586_525.pdf)



In FGDs, communities raised the issue of water pollution. According to the residents of Ghulam Mohammad Thahim village, underground water has been polluted. It tastes bitter now and remains unfit for drinking.



*Photograph of smoke released inside a gas plant in the Sanghar district.*

## IMPACT ON HEALTH:

The participants informed the team about the high incidences of lung disorders (respiratory infections, asthma), skin diseases (i.e., rashes, boils, allergies) and eye (watering, allergies) problems in the settlements. Harmful polluting substance in air has been shown to increase the risk of developing chronic respiratory diseases. The chimneys of the processing plants emit unbearable smell which makes breathing difficult at times. Participants also complained of gastrointestinal problems.

There are no basic health unit (BHU) within the settlements. The communities access healthcare services from the BHU Piro located 4 to 5 km away from village Thahim, established under the Peoples' Primary Healthcare Initiative, a public-private partnership programme of the Government of Sindh. According to the participants, the BHU Piro provides good and free-of-cost healthcare, particularly maternal and child healthcare.

**The participants informed the team about the high incidences of lung disorders, skin diseases and eye problems in the settlements.**

## SOCIAL WELFARE AND CSR:

The community members were aware of the fact that both the federal and provincial governments and the companies have certain statutory obligations towards social welfare of the communities. However, according to them, these obligations are not fulfilled. The company, i.e., OGDCL, pays to the government under several heads. These include: (i) production entitlements, (ii) taxes, (iii) royalties, (iv) dividends, (v) bonuses, and (vi) infrastructure improvement funds.<sup>48</sup> Royalty is payable at the rate of 12.5% of the value of the petroleum/gas. Ten percent royalty is to be utilised for infrastructure development in the district where oil/gas is produced.<sup>49</sup> Tax is payable at the rate of 40% of the net profit. In addition, windfall levy and production bonuses also yield hefty sums to the government. The participants thought that the revenue thus generated during the last many years, if had been spent justly and as stipulated would have transformed the gas-rich districts into decent, well-developed sustainable habitats.

As per Pakistan Petroleum Policy 2012 (Annexure 3: Employment, Training and Social Welfare Program), the

According to the FDG participants in Sinjhor Block, the OGDCL makes available a mobile field hospital to the villagers for three days every month. Only ordinary medicines (i.e., pain killers, cough syrups) are distributed and the doctor is just an MBBS health officer. Though people are suffering from specific chronic diseases, no specialist is ever made available. The OGDCL has also provided an ambulance and a fire brigade at the Sinjhor Block. However, the communities have not found their services accessible in any emergency. Neither the ambulance is provided to the needy, nor the fire brigade is sent if there is a fire, which happens off and on.

Currently there are three Members National Assembly and six Members Sindh Provincial Assembly who belong to the district.<sup>47</sup> According to the community representatives, one of the MNAs accessed jobs in the company for his family members/relatives.

amount of social welfare funds pledged by the companies (local and foreign) in their respective agreements must be utilised "to give lasting benefit to the communities". Social welfare projects must be agreed with the local community and the civil administration as per guidelines issued from time to time.

According to the Model Production Sharing Agreement, the companies, in consultation with the local civil administration or provincial government, have to undertake social welfare programmes such as improvement of educational facilities, drinking water, health, roads, and grant of scholarships for local students, and promotion of sports et al. The funds allocated for these projects should be spent during the exploration phase till the commencement of commercial production, and should not be less than thirty thousand dollars (US\$ 30,000) per annum.<sup>50</sup>

With reference to CSR disclosures, the Securities and Exchange Commission of Pakistan (SECP) introduced the first Companies (Corporate Social Responsibility) General Order, 2009. According to this order, all listed companies are required to disclose information about their CSR activities annually.

<sup>47</sup> National Assembly of Pakistan." n.d. na.gov.pk. [https://na.gov.pk/en/all\\_members.php](https://na.gov.pk/en/all_members.php)

<sup>48</sup> "Report on Payments to Governments for the Year Ended June 30, 2020." n.d. Ogdcl.com. Accessed December 8, 2022. <https://ogdcl.com/sites/default/files/publication/Payment%20to%20Govt.%20June%2030-2020.pdf>

<sup>49</sup> Model Petroleum Concession Agreement for Onshore Area 2013, <http://www.ppisonline.com/gov-policy/@dmln/uploadImage/71/Final-Model-PCA-Part-IIAmended-January-2020.pdf>

<sup>50</sup> Model Petroleum Concession Agreement for Onshore Area 2013, <http://www.ppisonline.com/gov-policy/@dmln/uploadImage/71/Final-Model-PCA-Part-IIAmended-January-2020.pdf>

According to the Model Production Sharing Agreement, the companies, in consultation with the provincial government, have to undertake social welfare programmes covering health, education, drinking water, and roads, among others. The funds allocated for these projects should be no less than US\$ 30,000 per annum.



*Distant view of a gas exploration company.*

The participants at the FDGs in all three areas shared that just a few roads have been constructed in the area. The UEPL installed seven reverse osmosis (RO) plants but none of these is working properly. People in the settlements have neither the skill nor resources to maintain the RO plants, the team was told. The UEPL planned a drainage scheme for the village few years ago and conducted a survey. However, the work has not yet started on this scheme. In Chang village, there are six RO plants installed by the company in the village. However, only three are functional.

## TRAINING AND EMPLOYMENT:

Community members shared they have been deprived of employment opportunities in the companies. An elder of the village said none of their young men have ever been hired by any company, nor has anyone ever got even a temporary job. A young educated man of village Chang, who works in an NGO, said he approached and corresponded with the company several times to get employment, but nothing happened. A villager shared that in his village, a few persons got temporary work on meagre wages and without any benefits. According to a participant, the company pays less than the minimum wage to the workers who guard

oil/gas wells. They typically earn a salary ranging from Rs.4,600 to Rs.10,600 per month.

As per Pakistan Petroleum Policy 2012 (Annexure 3: Employment, Training and Social Welfare Program), employment programs for Pakistani nationals shall be agreed upon on an annual basis. Trainings shall be provided for capacity building of Pakistani employees by foreign and local exploration and production companies, including internship/scholarships for the local inhabitants in different institutions, as per guidelines.

According to Article 17, Model Petroleum Concession Agreement 2013, the (field) operator including its contractors shall ensure the employment of unskilled workers of the area, at local/district level, to the extent of at least 80% of their unskilled workers category. An annual programme for employment and training of nationals of Pakistan shall be established by the operator and submitted for approval to the Director General, Petroleum Concessions at least 90 days in advance. The company is required to spend a minimum of US\$ 25,000 per year during the exploration phase, and another minimum US\$ 50,000 per year during the development and production phases on training.

**According to a participant, the company pays less than the minimum wage to the workers who guard oil/gas wells. They typically earn a salary ranging from Rs. 4,600 to Rs. 10,600 per month.**

## ROLE OF CIVIL SOCIETY:

The participants shared that a community-based organisation, Sarsabz Welfare Association, was formed in village Thahim several years ago. From this platform, the community representatives have participated in demonstrations and protests against the oil and gas companies. The participants remembered a lawyer-activist late Abdul Hakeem Khoso who was serving as President Tehsil Bar Association Tando Adam. He filed a petition in the Supreme Court in 2012 against oil and gas companies for failing to provide infrastructure, jobs and gas facilities in the district and for causing environmental pollution in Sanghar district. As a result, a notice to the OGDCL was

issued.<sup>51</sup> However, the participants conceded that no follow-up has been done on that petition. In 2014, several hundred people held a sit-in protest at the Bobi Oil & Gas Complex in Jam Nawaz tehsil, demanding the company to fulfil its commitment to spend funds for the uplift of the area and take measures to prevent and mitigate environmental pollution.<sup>52</sup>

The participants shared that a WhatsApp group by the name of Huqooq Awaam Zila Sanghar (District Sanghar Peoples' Rights) has been created on social media by district activists to share information and raise awareness on the oil and gas companies' activities and to promote their struggle against the violation of peoples' rights being committed by the companies.

<sup>51</sup> Imaduddin. 2013. "MD OGDCL Summoned by SC for Spreading Pollution in Sanghar Distt." Brecorder. August 17, 2013. <https://www.brecorder.com/news/amp/131674>

<sup>52</sup> The Newspaper's Correspondent. 2014. "Protest against Gas Company" Dawn, April 11, 2014. <https://www.dawn.com/news/1099002>

## SURFACE OWNERSHIP AND LAND RENT:

The people whose lands are located in the gas/oil field, said they are annually paid Rs. 48,000 or Rs. 50,000 per acre as a compensation for land use. The company has

not made any increment in the rate since the last five years. The people from whose lands, oil and gas lines pass, are paid at the rate of only Rs.10,000 per acre annually. There is no official information available on surface rent payment by the companies.



Local communities have frequently protested against the regional gas companies for failing to provide infrastructure, jobs and gas facilities.

**SECTION**

**4**

**CONCLUSION AND  
RECOMMENDATIONS**



It emerges from this rapid assessment of the three settlements located in hydro-carbon producing fields in Sanghar district, that the benefits of natural resources extracted from the land bypass the local inhabitants, and the indigenous communities remain mired in poverty and underdevelopment. The reasons are many. The foremost appears to be the element of elite capture: provincial government, operating companies and the elite of the area collude with each other in protecting their own interests, and do not let the due portion from generated-revenue to pass on to benefit the local communities.

The 18th Amendment in 2010 provided for joint and equal vesting of mineral resources, including oil and gas, in the provinces. However, it is not yet implemented fully according to the provinces. Sindh, which now holds the major share of oil and gas resources receives its share of revenues

from the federal government.<sup>53</sup>

The weak agency of the local communities is another issue. Though the inhabitants of the resource-rich districts are politically aware and generally informed of the obligations of the companies and the government, external constraints obstruct the mobilisation of the larger civil society for solidarity. Due to the lack of adequate disclosure of information clauses in the relevant laws, the companies and provincial departments do not share information which would help the communities and the civil society to monitor the spending of the social welfare funds and revenues under other heads.

Lastly, the government's own capacity and political willingness to implement the environment and CSR laws to benefit the local communities seem extremely compromised.

## RECOMMENDATIONS

The following recommendations have been gathered based on the communities' feedback and TKF's own assessment of a range of actions required to protect the rights of the local communities living in the vicinity of the gas fields.

- 1** Facilitate and strengthen local organisations in the district: A strong role of local organisations (trade unions, civil society groups and community-based organisations) is essential in advancing the rights of the local communities in resource-rich areas. The communities have awareness of the unjust distribution of resources at the district level. They have the spirit to fight. Civil society groups actively advocating equity and sustainability at the national level need to form alliances with community-based organisations at the local level for information sharing, capacity building, and for solidarity.
- 2** Develop knowledge products and information material for local communities living in oil/gas producing regions to provide them with a basic understanding of the sector, company structures, potential impacts of gas production on environment and humans, and community-company engagement strategies.
- 3** Mobilise local communities for advocacy and pressure-building on the companies to take measures to limit the impacts on biodiversity; minimise water consumption and discharges; reduce damaging air emissions and reduce greenhouse gas emissions in order to address the risk of climate change through improved energy efficiency in operations.
- 4** Review existing legislation, rules and regulations governing social welfare and environmental management in oil and gas production and lobby with legislators for requisite amendments, if required.
- 5** Advocate for adequate disclosure of information from the companies on all aspects, including financial aspects, of oil and gas production and CSR policies.
- 6** Assist local communities to monitor the working and the business of the district Social Welfare Development Committee.
- 7** Lobby with the Hydrocarbon Development Institute Pakistan, or the Sindh Government, to share specific data about the number of settlements (located on the hydrocarbon fields) and their socio-economic indicators.



<sup>53</sup> "RULING OF THE CHAIR, Operationalization of Joint Ownership of Mineral Oil and Natural Gas; Implementation of Article 172 (3), Constitution." n.d. Gov.Pk. Accessed December 8, 2022. [https://senate.gov.pk/uploads/documents/1582527957\\_947.pdf](https://senate.gov.pk/uploads/documents/1582527957_947.pdf)

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**Natural Gas Infrastructure and  
Indigenous Communities in Sindh:**

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