



MARDAKAN POULTRY PLANT

Project Developer **AgriBioEkoTex**
CPEE CENTRE

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Poultry production capacity in Azerbaijan

- ❑ There are 20 poultry plants with capacity 1mln chicken heads and more;
 - ❑ 24 plants each having 300-500 thousands;
 - ❑ Average daily value of manure for 1 mln plant is 100-120 t, which is burned out.
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MARDAKAN POULTRY PLANT BIOGAS PIN

- The purpose of this project is to mitigate Mardakan Poultry Plant's animal effluent related GHG-emissions, by improving the farm's AWMS (Animal Waste Management System) practices.
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PROJECT DESCRIPTION AND PROPOSED ACTIVITIES

- ❑ 120 tons/day of manure from poultry with 95% of humidity is stored at manure lagoons near Mardakan Poultry.
- ❑ JSC “Mardakan Gushchulug” (with capacity of 1mln head) has 4 open lagoons, with capacity of 1 500 tons each, for manure storage. The manure is stored in winter time, and it’s transported to the farm fields in spring, when the seeding works will start.
- ❑ All lagoons are filled within one year, sometimes its needed to rent lagoons for additional volume of manure.
- ❑ Storing of the manure in open lagoons for 1.5 – 3 years leads to release of methane into the atmosphere, which has environmental and sanitary impact



PROJECT DESCRIPTION AND PROPOSED ACTIVITIES

- In order to eliminate CH_4 emissions from lagoons, it is required to change manure treatment method.

New treatment method will give us:

- Methane emissions reduction;
 - Biogas production;
 - Production of electric energy;
 - Production of organic fertilizers for local farmers.
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TECHNOLOGY TO BE EMPLOYED

- The technology to be employed by the project activity introduces 2 anaerobic digesters of 1100m³ each to be used to reduce Volatile Solids in the manure stream before entering the open lagoons. The system will have a sufficient capacity to create an adequate Hydraulic Retention Time (HRT) to ensure a stable biogas process.
 - Two existing oil tanks will be rebuilt. An existing steel tank will be used as gas storage for the produced biogas. Processed effluent from the biogas plant will be routed to the existing lagoons and the captured gas will be routed to the gas engine and/or a flare and destructed. The existing lagoons will be used for storage of the digested biomass.
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LOCATION OF THE PROJECT

- Azerbaijan
 - Suburban area (40km) of Baku
 - Project will be implemented in Mardakan town, near Baku.
 - Project is located in prairies and has access to extensive infrastructure network
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PROJECT PARTICIPANT

- Project Operator CPEE Center
 - Owner of the site Mardakan Gushchulug
 - Owner of the emission reductions Mardakan Gushchulug
 - Seller of the emission reductions Mardakan Gushchulug
 - Project advisor/consultant Tekna, EconPoyri, Norsk Energy
 - Project investor AgriBioEkoTex + Mardakan Gushchulug
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Estimated time of commissioning after approval of the PIN



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- Time required for financial commitments: 9 months
 - Time required for legal matters: 6 months
 - Time required for construction: 9 months
 - First year of CER/ERU/VERs delivery ---- 2009
 - Current status or phase of the project –
Identification and pre-selection phase
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Estimate of greenhouse gases abated

- Annual *42 000* tCO₂-equivalent
 - Up to and including 2012: *168 000* tCO₂-equivalent
 - Up to a period of 10 years: *420 000* tCO₂-equivalent
 - Up to a period of 7 years: *294 000* tCO₂-equivalent
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BASELINE SCENARIO

- **Alternative 1(Business as usual)**: is a very likely scenario under current conditions in the Republic of Azerbaijan. There are no legal requirements for Mardakan Poultry Plant to reduce CH₄ emissions.
 - **Alternative 2(Project activity without CDM)**: is very unlikely since the installation and operation of a biogas plant does not lead to any economic benefit for Mardakan Poultry Plant. The installation of such technology without carbon credit trading (CDM) would only lead to unrecoverable costs at Mardakan Poultry Plant.
 - **Alternative 3(Other options)**: there is no other identified and proven technology which can be installed at the Mardakan Poultry Plant which will lead to CH₄ capture and combustion under economically viable conditions.
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BASELINE SCENARIO

- All this alternative are reflected the current situation in Azerbaijan :
 - Low tariffs for Natural Gas and Electricity
 - Equipment and installation cost is very high and financing source is required
 - Low control of GHG emissions for Poultry Plant.
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ADDITIONALITY

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- Currently, there are no national regulations or legal obligations in the Republic of Azerbaijan concerning CH_4 emissions from animal production. It is unlikely that any such limits on CH_4 emissions will be imposed in the near future.
 - In addition to this there are no governmental funds available to support the installation and operation of CH_4 capture and combustion technologies at Mardakan Poultry Plant.
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ADDITIONALITY

- One of most important barrier to implement this project is that natural gas prices in Azerbaijan much lower than international prices.**

 - Without CDM revenue this project can't be realized because of high required investment, negative NPV and NPVQ, low IRR 11,7 %**
 - With CDM support the IRR will increase up to 24% (Interest rate in Azerbaijan is about 16%)**
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TOTAL CAPITAL COST ESTIMATE (PRE-OPERATIONAL)



- Development costs 100 000,00 US\$ (Feasibility studies, resource studies, etc.)
 - Installation costs:
 - 1.2 US\$ million (Equipment for neutralization of ammonium, assembling, etc).
 - 2 US\$ million (Equipment for CH₄ capture and collection, combustion, small gas turbine, generator, transformer, automatic control equipment, projecting, installation,)
 - Land (2 hectares) belongs to Poultry Plant owner.
 - Other costs 900 000,00 US\$ (Legal, consulting, etc.)
 - Total project costs **4.2US\$ million**
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EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS



CH₄ emissions reduction from manure lagoons;

- Use organic fertilizers by local farmers;
 - Reduction of odors from manure lagoons;
 - Reduction of water pollution;
 - GHG emissions reduction;
 - Commitment to the International Conventions;
 - Creation of new work places for local community;
 - Production of renewable energy;
 - Use of exempted financial means for other company's development purposes;
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EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS



- Creation of work places for local community;
 - Improvement of the working conditions for plant;
 - Technology and know-how transfer;
 - Training of biogas Plant's Operation and Maintenance Personnel;
 - Multiplication of the new biogas technology in country scale;
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THANK YOU !
