



KANO STATE OF NIGERIA



Work Plan for Appropriate Technology 2009-2011

Prepared by
MINISTRY OF SCIENCE AND TECHNOLOGY
KANO STATE



Malam Ibrahim Shekarau
The Executive Governor
of Kano State

**MINISTRY OF SCIENCE AND TECHNOLOGY,
KANO STATE**

Work Plan for Appropriate Technology

2009 – 2011

Jimadal Ula 1430 / May 2009

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MESSAGE BY HIS EXCELLENCY, MALAM IBRAHIM
SHEKARAU, THE EXECUTIVE GOVERNOR
OF KANO STATE

Early during this year (2009), recognizing the ever increasing importance of Science and Technology in improving the lives of our citizens and eager to strengthen the already existing efforts on the promotion and use of Science and Technology by various ministries and agencies, our administration established the Ministry of Science and Technology. Aware of the cross cutting nature of Science and Technology, we gave the Ministry a wide range of functions including formulation and implementation of policies, popularization and publicity, encouragement of research and innovation activities, development of ICT and promotion of local technologies.

Important as all the functions were to the overall development of Science and Technology in the State, our human development focus and desire to see that as many as possible of our teeming population benefit from the activities of this new Ministry, made us to urge the Ministry to give special attention to the development of local and appropriate technologies.

I am happy to observe that the Ministry has taken up this challenge very seriously and, barely four months since its establishment, it has not only come out with a well conceived Appropriate Technology programme, but has developed a detailed work plan that will guide and direct its implementation.

The people and government of Kano State are truly proud of the achievement of this Ministry within this short period of its existence, and we are all eagerly awaiting to benefit from the implementation of this programme and other important activities that the Ministry will pursue as it grows.

May Allah, the Most High, assist the new ministry in successfully undertaking its lofty programmes and may these programmes truly improve the lives of our teeming population.

Ibrahim Shekarau

Jumadal ula 20,1430 AH / May 15, 2009.

FOREWORD

The Kano State Government under the leadership of Malam Ibrahim Shekarau established the Ministry of Science and Technology in January 2009. The Ministry was given a broad range of functions related to promotion, innovation, ICT, and Appropriate Technology. Government directed that special emphasis be given to Appropriate Technology in view of its potential of benefiting a very large number of citizens of the state. Accordingly, the Ministry developed a comprehensive Appropriate Technology programme with following set of activities:

- a) Organizing research to identify areas requiring Appropriate Technology,
- b) Promoting the development of appropriate technologies.
- c) Sensitizing the populace on the use of products of Appropriate Technology.

Activities of this nature certainly require a work plan that will guide the Ministry as well as other stakeholders, and serve as a reference point from which to evaluate the success of the programme.

In order to develop a detailed work plan, a competent consulting firm-Samarib Ventures Ltd- was commissioned to do the job in collaboration with the Ministry. The work plan was enriched with an introduction, an overview on Appropriate Technology., discussion of some problems requiring its adoption in Kano State and description of the methodology and procedure for addressing them. to form a full-fledged document.

I pray to Allah (SWT) to assist the Ministry and other stakeholders in Appropriate Technology in implementing the work plan to make it beneficial to the people of Kano State.

Dr. Bashir S. Galadanci

Pioneer Commissioner, Ministry of Science and Technology, Kano State.

Jimadal Ula 17, 1430 / May 12, 2009

Chapter One

INTRODUCTION

Kano State came into existence in 1967. It composed of 44 local government areas(LGAs) and has a total land area of 20,760 square kilometers. The State had in the past depended on crafts and trade. At one time, it produced ten million sandals per annum and was a celebrated center of textiles with its products competing with those of Manchester in the pre-colonial period. The State now depends on trade and a few manufacturing companies especially tanneries and textiles for its formal private sector economy and on revenue from the Federal Government. In the 1960s it generated 95% of its revenue locally (Ado-Kurawa, 2003).

The technical know-how of dye works was brought to Kano from Morocco in the fifteenth century but later Kano was exporting dyed clothes to Morocco. In the traditional dyeing industry, dyers use hands to dip clothes in dye pits that are commonly found in Kofar Mata, Dala, Gangamau and Zage wards all in Kano city, and also in Kura and Rano towns. As for traditional tanneries, Barau (2007:66) explains that the process of tanning hides and skins includes "soaking, defatting, drying and toggling all using human energy and locally sourced materials". The

traditional tanneries are found in Majema, Dukawa, Kofar Wambai, Arzai and Adakawa all in the ancient city. What needs to be added here is that Kunnawa village (near Dungurawa village) in Dawakin Tofa Local Government area is also well known for traditional tanning.

The rate at which appropriate or modern technologies are adopted in carrying out occupations or solving problems facing the people of Kano State is significantly low when we observe how things are done in the State. People still rely on the traditional technologies used by their forefathers. For instance, majority of farmers still use the hoe in tilling the land, weavers use the traditional weaving tools while women in Kano city still use cornstalk in baking *gurasa*, a traditional bread, instead of adopting modern tools and methods used by people in other societies that produce and consume similar breads. If one has been attending the made-in-Nigeria trade fairs, say for the past 20 years, which the Kano Chamber of Commerce, Industry, Mines and Agriculture has been organizing, one would observe that products of arts and crafts displayed in state pavilions and at the stands for local governments have been virtually the same. Leather works, woven clothes, pots and locally made cutleries displayed at the trade fairs have been virtually the same

over the years. Traditional technologies and methods used for solutions to problems or carrying out certain tasks include the use of axe to cut wood, use of donkeys to transport goods, use of labourers who carry bags of farm produce on their heads and backs for uploading these goods from trucks, and the use of earthen pots for cooling water and soft drinks.

Factors responsible for technological stagnation in the State cannot be unconnected with poverty, conservatism, lack of education and exposure to modern technologies as well as inadequate government support and subsidies for popularising large scale adoption of appropriate technologies. If, for instance, all the three tiers of government had been importing or producing modern farm tools and machinery in a substantial way, most farmers could have stopped using hoes in cultivating lands.

The good thing about the adoption of appropriate technologies is that they facilitate efficiency in the use of resources; they make large scale production easier and subsequently lead to the reaping of economies of scale. They, in general, make life easier and better. It will be unwise for any society to remain docile without quests for

progress in the manners in which its people carry out their occupations or solve problems facing them.

The Kano State government under the leadership of Malam Ibrahim Shekarau established the Ministry of Science and Technology in January 2009 and appointed Dr. Bashir S. Galadanci and Alhaji Yusuf Ahmed as its first Commissioner and Permanent Secretary, respectively. The functions of the new Ministry include the following:

- i. To promote the formulation and implementation of policies in Science and Technology in Kano State.
- ii. To create and popularize public awareness and support for Science and Technology as tools for development.
- iii. To promote and harness scientific and technological research as well as their practical application for the State's socio-economic advancement.
- iv. To encourage and support initiatives for innovation in the creation of new products and techniques especially in areas such as agriculture, industry, science and technology, education, health, environment, construction, etc.

- v. To promote, support and sustain the spread of ICT knowledge and skills throughout the State particularly among the work force, youth and schools.
- vi. To establish, promote and maintain mutual and lasting synergy/linkages with appropriate state, federal and international agencies in Science and Technology.
- vii. To harness and nurture potentialities for local technologies as vehicles for socio-economic development.

Noting the focus on local technologies in the functions envisaged for the Ministry, and realizing the critical importance of Appropriate Technology in bringing about rapid socio economic development all over the state, the Ministry has come up with a special programme on Appropriate Technology.

The activities to be conducted under this programme include:.

- a) Organizing research to identify areas requiring Appropriate Technology.

- b) Promoting the development of appropriate technologies.
- c) Sensitizing the populace on the use of products of Appropriate Technology.

The overall goal of this programme is to research, develop and sensitize people in the State to apply appropriate technologies in their chosen professions, solve problems and achieve sustainable development.

The specific objectives of this programme are as follows:

- a) To undertake researches related to needs, status and potentials of Appropriate Technology in the State.
- b) To build a database on Appropriate Technology potentials in the State, which include human, material and financial resources?
- c) To work with relevant bodies and talented individuals in the area of developing appropriate technology products.
- d) To liaise with the public and private concerns for the purposes of commercial production of appropriate technology products.

- e) To promote the adoption and utilization of appropriate technology products.
- f) To continue to inform, sensitize and advise the general public and decision makers in government on the role of Appropriate Technology in the development of Kano State.

This work plan provides a detailed breakdown of activities for this lofty Appropriate Technology programme of the Shekarau Administration.

After this introductory chapter, the next chapter gives a detailed overview of Appropriate Technology describing the concept as well as its areas and giving some examples of its products. This is followed by chapter 3 which deals with the methodology and procedure for addressing problems requiring Appropriate Technology solutions. The final chapter gives the 3-year work plan (2009-2011) in tabular format.

Chapter Two

AN OVERVIEW OF APPROPRIATE TECHNOLOGY

The is a need to provide an overview of Appropriate Technology to serve as a guide to all stakeholders and a means of getting their support and cooperation in the realization of the objectives of the Appropriate Technology programme of the Ministry. The overview provided here touches upon Appropriate Technology concepts and divisions, areas of concern and initiatives and, lastly examples of Appropriate Technology projects.

Appropriate Technology Concepts and Divisions

The term appropriate technology came into some prominence during the environmental movements of the 1970s and the energy crisis of 1973. The term is typically used in two senses; utilizing the most effective technology to meet the needs of developing areas, and using socially and environmentally tolerable technologies in the industrialized nations. The founders of the Appropriate Technology initiative include Buckminster Fuller, Sen Kafadia, Mahatma Ghandi, E.F Schumacher, Sanousi Diakite, William Moyer, Johan Van Lengen, etc.

Appropriate Technology is defined as a technology designed with special consideration to the environmental, ethical, cultural, social and economical aspects of the

community it is intended for. Compared to high technology used in industrialized societies, appropriate technology requires fewer resources, has a lower overall cost and less of a harmful impact on the environment. It is also easier to maintain. Appropriate technology is not necessarily a "low" technology; in fact it can utilize recent research. For instance, white LED lights are used by the Light Up the World Foundation to replace more traditional forms of lighting used in remote areas of Nepal. Often the type of Appropriate Technology used in developed countries is "Appropriate and Sustainable Technology" (AST) that is, appropriate technology that is very durable and lasts a long time (http://en.wikipedia.org/wiki/Appropriate_technology).

In the Engineering for Developing Communities (EDC) programme of Colorado University, appropriate technology is seen as a technology usually characterized as

being small scale, energy efficient, environmentally sound, labor-intensive, and controlled by the local community. It must be simple enough to be maintained by the people using it. Furthermore, it must match the user and the need in complexity and scale and must be designed to foster self-reliance, cooperation and responsibility (<http://www.edc-cu.org/R&D.htm>).

Yahaya (2002) provides another definition of appropriate technology. He writes that appropriate technology is

the systematic application of collective human rationality to the solution of problems through assertion of control over nature and all kinds of human processes. It is the embodiment and result of systematic, disciplined, cumulative, non-accidental, and non-serendipitous research.

E. F. Schumacher coined another term intermediate technology, which is similar to appropriate technology. Intermediate technology refers to tools and technology that are significantly more effective and expensive than traditional methods, but still cheaper than developed world technology. Intermediate technology can be built and serviced using locally available materials and knowledge, and is compatible with the laws of ecology and gentle in its use of scarce resources. Moreover, intermediate technology is designed to serve the human person instead of making him the servant of machines (http://en.wikipedia.org/wiki/Appropriate_technology).

M.L.Albertson and A. O. Faulkner divided appropriate technology into two. There is appropriate hard technology dealing with engineering techniques, physical structures, and machinery that meet the needs of a given community

and can be built, operated and maintained by it with very limited external support. There is also appropriate soft technology dealing with the structure and process for social participation, motivation techniques and choice-implementing behaviors that bring about a change in the way people do something (*ibid*).

Areas of Concern and Initiatives

Appropriate technology is concerned with a variety of tasks and problems such as the following:

- City construction
- Building construction
- Energy
- Water supply
- Transportation
- Sanitation
- Lighting
- Food production
- Food preparation
- Cooking
- Refrigeration
- Ventilation and air conditioning
- Health care
- Information and communication technology
- Money lending and finance

([http://en.wikipedia.org/wiki/Appropriate technology](http://en.wikipedia.org/wiki/Appropriate_technology)).

Numerous initiatives in the form of devices, tools, systems and methods exist in the field of appropriate technology for meeting occupational needs or solving problems faced by mankind. Solar devices include Concentrating Solar Thermal Water Pump, Expanding Rubber Belt Solar Turbine, Boiler Feed Solar Engine, Oscillating Solar Pump, Solar Box Cooker, Solar Power Generator, Solar Food Dehydrator and Solar Water Distiller. Mechanical devices include Human Powered Well Driller, Wind Chute Power Turbine, Communications/Radio, Homebrew Power Generator, Wind Generators, etc. In the area of animal husbandry there are Beekeeping, Raising Chickens, How to Clean a Fish, Skinning and Dressing Rabbits, Raising Rabbits, Homemade Rabbit Cage Snares And Traps , etc. Water systems have Water Power Generation, Solar Hotwater Heater, Bicycle Rope Pump ,Rain Water Catchment System , etc. There are also chemical tools such as electric arc to produce nitrogen fertilizer, food yeast from a biogas digester, cellulose to sugar in a heat reactor, water purification with bleach, etc. Under Agriculture and Agroforestry there are, Making Firewood, Pest Control, Greenhouse Gardening Tips, Container Herb Gardening, How to Plant a Garden, Irrigation Formulas, Starting Seeds Indoors, Saving Seeds, etc. In relation to building there are Passive Air Conditioning, Sawdust Firing Pottery Oven, Small Chicken House, etc. Finally, in the **area** of rural self-reliance there are Homemade **Pharmaceuticals**, How To Make Soap, How To Sharpen

Tools, Human Waste and Disposal, How To Make Candles, Home Canning and Preserving, Home Food Drying, Heating, Cooking and Lighting, Outdoor Oven, Wood Burning Basics and the rest (Institute for Appropriate Technology, online reports).

Examples of Appropriate Technology Projects

An organization called The Solar Electric Light Fund (SELF) has been working in the field of renewable energy, household energy and decentralized rural electrification in the U.S., Africa, Asia, and Latin America. It brought solar electricity to the village of Pulimarang in partnership with the Centre for Renewable Energy (CRE) in Kathmandu. The CRE is a non-profit organization working to advance decentralized energy options for Nepalese rural electrification. With support from the Moriah Fund, solar home systems (SHS) were mounted in sixty-five homes and a community center established in the Nepal's village.

Each solar home system in the project village consisted of a Siemens Pro Charger 35-watt panel, a 70 amp-hour battery, and a charge controller. The systems, which could power three 9-watt fluorescent lights, as well as a television or a radio, were supplied by the Solar Electricity Company, a Kathmandu-based solar PV distributor.

SELF provided the initial financing for forty-seven \$425 solar electric systems. Villagers had the option of paying for the systems with cash, or simply pay 20% down, and finance the rest over a period of one to three years. Monthly loan payments on the systems are roughly equivalent to what a family in the Pulimarang village was currently paying for lighting in the form of dry-cell batteries and kerosene. Discounts were provided to families purchasing the systems upfront.

Villagers with solar home systems could now read and study during nights, or extend the productive workday long after the sunsets. Moreover, they no longer complain of kerosene smells or irritated eyes due to smoke. A community center was electrified with fluorescent lights and a television for the benefit of those families unable to purchase systems (<http://www.self.org/nepal1.shtml>).

SELF also executed a project in Jigawa State of northern Nigeria. The United States Agency for International Development and the United States Department of Energy committed about 60% of the necessary funding for the project with the balance coming from Jigawa State government. SELF was the lead implementing organization. It partnered with the Jigawa Alternative Energy Fund (JAEF), a non-government organization formed to promote the use of renewable energy.

The project involves the comprehensive use of solar-generated electricity in villages for improving education, health, agriculture, water supply, commerce, security and women's opportunities. It provides powerful solar-powered pumps designed to run for eight to ten years or more and supplying the villages with clean, fresh water from deep wells. The village health clinics also benefit from solar energy; vaccine refrigerators allow more people to be vaccinated at greater frequency and fans make health centres more comfortable. Village primary schools have at least two illuminated classrooms and this makes evening lessons for adult education possible. Each school in the project villages has been provided with a computer.

Streetlights now give people bright places to gather together, new food-selling businesses are now open for business under the lights. Villagers also appreciate having electricity in their mosques. The solar-powered micro-enterprise buildings serve as centerpieces in each village with each centre providing electricity to 6 very small businesses. The shared PV system allows tailors to change from manual sewing machines to electric, and barbers, from manual clippers to electric.

This project has also introduced home lighting systems to each village; it is now easier for children to do their studies under the better lighting conditions. With about 20 systems in each village, demand and a great deal of

interest have been created in the home systems. JAEF could continue electrifying houses through the use of a micro-credit scheme (<http://www.self.org/nigeria1.shtml>).

Chapter Three

SOME PROBLEMS REQUIRING APPROPRIATE TECHNOLOGY IN KANO STATE

A look at the way people do things in Kano State leads to the identification of a number of problems bedeviling their occupations, livelihood and even leisure. Some these problems relate to the following matters:

1. Cooking with Firewood

There are a number of problems associated with the use of firewood as fuel for cooking, baking or roasting food items, and for heating rooms when the weather is chilly. Firewood occupies a lot space so its storage in cities is a problem; it litters the environment and sometimes injures one's hands when handled. The smoke from the use of firewood pollutes the environment and darkens pots and kitchen walls. The use of firewood as fuel has a devastating impact on the environment because continuous felling of trees leads to desert encroachment and decreases the availability of medicinal plants. Frequent sitting near firewood flame can cause hypertension while the smoke may damage the user's eyes. Above all, cooking with firewood is very inefficient in terms of low percentage of the heat generated that is actually utilized in the cooking.

Despite all these problems firewood is still the predominant fuel for cooking in cities, towns and villages in Kano State. Worse still, some people use dried cornstalk as fuel. Appropriate cooking technology is needed to reverse this trend.

2. Lighting

This is one of the most serious developmental challenges faced by Kano State as virtually all its streets are in total blackout every night not to talk of houses within the metropolitan except for the few that can afford petrol or diesel generators. This promotes the level of insecurity and crime in the city and a number of advantages of good lighting are not enjoyed; the good night view of lighted city streets and houses, clear night visibility, proper lighting for students to read and do their homework in the night, to mention but a few. Kano State can change the situation by adopting appropriate technology to deal with the situation.

3. Refrigeration

This is crucial to modern city life as food and health related items need to be kept refrigerated for their freshness and validity. The present day refrigerators are highly dependent on electricity, which is itself a problem in

Kano State, hence the need for an alternative. Appropriate technology has a role to play here with the invention of refrigerating systems that use minimum electricity or do not require the use of electricity at all.

4. Food Processing

The traditional way of baking *gurasa*, the local bread, is associated with a number of problems. Some of the places or houses where the baking takes place are unclean and unhealthy which can lead to contaminating the product. Secondly, the people engaged in the baking usually end up hypertensive because of the excessive heat in the process. The processing of sliced meat for *kilishi* is also bedeviled with its own set of problems. The meat is dried in the open with flies and dust in attendance. The long time it takes to produce *kilishi* increases the chances for the contamination of the product.

4. Charging of Handsets

With the coming GSM technology, the use of mobile handsets has become a common place in our communities. However, the greatest challenge faced by users is the fact that the handsets run on battery that has to be recharged from time to time using electricity. The supply of electricity in Kano State has been erratic for

Chapter Four

METHODOLOGY FOR ADDRESSING PROBLEMS AND THE RELEVANT STAKEHOLDERS

Problems stated in the previous chapter and their likes cannot be solved within a short period of time because they require lots of funds or are beyond the powers of the Ministry of Science and Technology and even the Kano State Government. Some problems require concerted efforts by government, donor agencies, philanthropists and communities before they can be surmounted, yet some require the intervention of the Federal Government. In view of this, the Ministry has devised a methodology for addressing these problems as explained below.

- a) Use of researches to identify needs for appropriate technology and to build a database to facilitate informed decisions and prioritize the use of available funds.
- b) Selecting problems which the Ministry can attend to at a particular time, given the available resources. This is the premise upon which the work plan focuses on some of the numerous problems for the time being.

- c) Adoption of a unique way of solving problems by involving researchers, academics, professionals and talented people in decision making, implementation of projects and finding solutions to problems.

Procedure

The procedure for addressing problems requiring Appropriate Technology, in most cases, will involve the following major steps:

- a. *Research*: a research is conducted for the sake of indentifying the need for Appropriate Technology, assessing the status of the available traditional technology, determining the location and number of cases, occupations or people affected, determining the appropriate means of solving the problems at hand, etc.
- b. *Pilot Scheme / Prototype Development*: Where there is a need to address problems requiring Appropriate Technology that affect many people or occupations, the Ministry will adopt a pilot scheme by selecting a small number of people, cases or occupations when implementing an intervention measure. Where a new product of Appropriate

Technology is required to solve a problem, the Ministry will produce or support the production of a prototype which will be tested for efficiency, economy and popularity among users.

- c. *Monitoring and Evaluation:* The Ministry will closely monitor and evaluate the implementation of the pilot projects or scheme and the use of prototype products of Appropriate Technology.
- d. *Revision:* monitoring and evaluation pilot projects or schemes and the use of prototype products of Appropriate Technology may call for revisions and modifications to address observed inadequacies and lapses.
- e. *Promotion and Support for Large Scale Adoption and Commercial Production:* The Ministry will provide support for wide adoption of Appropriate Technology among people in Kano State through promotion of new products and techniques, and through the provision of some free samples. The innovators/producers of prototypes will be supported to go into commercial production through patronage, recommendations to potential users, moral support, etc.

Stakeholders in Appropriate Technology

Successful implementation of the work plan for appropriate technology requires the cooperation, contribution and understanding of all stakeholders. A part from the Ministry of Science of Technology, which is the major stakeholder, other stakeholders include:

1. The Federal Ministry of Science and Technology, and its agencies such as

Raw Materials Research and Development Council (RMRDC)

National Office for Technology Acquisition and Promotion (NOTAP)

National Agency for Science and Engineering Infrastructure (NASENI)

Federal Institute of Industrial Research Oshodi (FIIRO)

Projects Development Institute (PRODA)

National Board for Technology Incubation (NBTI)

(Source: National Council on Science and Technology, 2007)

2. Regulatory agencies seeking to ensure industrial sanitation and safety, quality of products and adherence to business laws and regulations.
3. Institutions of higher learning offering technology related courses: these include Bayero University, Kano, that has a faculty of Engineering and Technology, Kano University of Technology, Wudil, the School of Technology under the Kano State Polytechnic, the Sa'adatu Rimi College of Education, the Federal College of Education, Kano, and the Federal College of Education (Technical) Bichi that offer vocational and technical education courses, and the rest. These institutions have manpower and facilities that can be tapped or developed to achieve some of the goals of the Ministry in area of Appropriate Technology.
4. Firms offering consultancy services in the fields of research (e.g Samarib Ventures Limited), feasibility studies, capacity building for users of technology, etc.
5. Firms and individuals producing appropriate technology products. In addition to supplying their

products, they can go into commercial production of prototype products of Appropriate Technology, take part in exhibition and trade fairs, etc.

6. Non -Governmental Organisations interested in Appropriate Technology initiatives. Examples of these include the Solar Electric Light Fund (SELF) that has been working in the field of renewable energy, household energy and decentralized rural electrification, and the African Technology Policy Studies (ATPS) which is a multi-disciplinary network of researchers, practitioners and policy makers that promotes science, technology and innovation policy research, dialogue and practice, for African Development. Its mission is to "improve the quality of science, technology and innovation systems research and policy making in Africa by strengthening capacity for science and technology knowledge generation, communication and dissemination, use and mastery, for sustainable development in Africa" (<http://www.atpsnet.org/>).
7. Donor agencies interested in Appropriate Technology initiatives.

8. Individuals and groups of people endowed with talents in the production or maintenance of Appropriate Technology products.
9. End users of Appropriate Technology. The users are not the least among the stakeholders even though they come last in the list. All projects and products related to Appropriate Technology need to be conceived and designed in line with the needs and peculiarities of the end users. Some times their views, even if naïve, need to be sought.

Chapter Five

THE WORK PLAN

This chapter presents a work plan for executing the Appropriate Technology programme of the Ministry for the period covering 2009-2011.

Activities Planned for 2009

S/N	Activity	Implementation	Period for accomplishment
1	Formation of Research Committee for Appropriate Technology.	The Ministry	2 weeks
2	Production of a Work Plan on Appropriate Technology.	The Ministry	2 months
3	Advocacy visits to relevant agencies and ministries in connection with Appropriate Technology.	The Ministry	Continuous throughout the year

4	Sensitization workshop and formal launching of the Work Plan on Appropriate Technology	The Ministry	Preparation can take 1 month
5	<i>A Survey on the Status of Traditional and Appropriate Technologies in Kano State</i>	Ministry and a Consultancy firm	4 months
6	<i>A Survey on Needs for Appropriate Technology in Selected Food Processing Businesses in Kano State</i>	The Ministry and a Consultancy firm	4 months
7	<i>Database on Appropriate Technology Potentials in Kano State and Possible Partners for</i>	The Ministry and a Consultancy firm	4 months

	<i>Collaborative Work</i>		
8	Publication of the research reports	The Ministry	1 month for each report
9	Exhibition of Appropriate Technology products and skills	The Ministry in conjunction with relevant stakeholders	Preparation can take 1 month

Note: Some of these activities like the researches and publications can run concurrently.

Activities Planned for 2010

S/N	Activity	Implementation	Period for Accomplishment
1	Establishment of a technology incubation centre	The Ministry	5 months
2	Research on the development of Appropriate Technology products for food processing industry/traditional crafts	The Ministry	1 month
3	Production of prototype products of Appropriate Technology for food processing industry/traditional crafts	The Ministry/ technicians	2 months
4	Advocacy visits to relevant agencies and ministries in connection with	Ministry	Continuous throughout the year

	Appropriate Technology.		
5	Feasibility studies on the commercial production of Appropriate Technology products for the food processing industry./traditional crafts	The Ministry and a Consultancy firm	2 months
6	Formal launching of Appropriate Technology products for the food processing industry/traditional crafts	The Ministry	Preparation can take 1 month
7	Commercial production of the products of Appropriate Technology for the food processing industry./traditional crafts	Technicians	This should begin with production on demand, and carried out continuously

8	Capacity building workshops on maintenance of products of Appropriate Technology for the food processing industry/traditional crafts	The Ministry	Preparation can take 1 month
9	3-day workshop on the use of products of Appropriate Technology for the food processing industry/traditional crafts	The Ministry	Preparation can take 1 month

Activities Planned for 2011

S/No	Activity	Implementation	Period for accomplishment
1	Research on the development of Appropriate Technology products for urban and rural households	Ministry/firm/NGO	3 months
2	Production of prototype products of Appropriate Technology for urban and rural households	Ministry/ technicians	2 months
3	Advocacy visits to relevant agencies and ministries in	Ministry	Continuous throughout the year

	connection with Appropriate Technology.		
4	Feasibility studies on the commercial production of products of Appropriate Technology for urban and rural households	Ministry/ technicians	2 months
5	Formal launching of the products of Appropriate Technology for urban and rural households	Ministry	Preparation can take 1 month

6	Commercial production of the products of Appropriate Technology for urban and rural households	Technicians	This should begin with production on demand, and carried out continuously
7	Capacity building workshops on maintenance of products of Appropriate Technology for urban and rural households	Ministry	Preparation can take 1 month
8	3-day workshop on the use of products of	Ministry/ firm	Preparation can take 1 month

	Appropriate Technology for urban and rural households		
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REFERENCES

Ado-Kurawa, Ibrahim (2001) *Some Causes of Kano Riots and Solutions Based on Stimulating Economic Growth*, a paper prepared for Inuwar Jama'ar Kano retrieved on March 8, 2009 from http://www.kanoonline.com/publications/pr_articles_kano_riots_01.html

Appropriate Technology

http://en.wikipedia.org/wiki/Appropriate_technology

accessed on March 6, 2009.

Barau, Aliyu S (2007) *The Great Attractions of Kano*, (Kano: Research and Documentation Directorate)

<http://www.atpsnet.org> visited on April 14, 2009.

<http://www.self.org/nepal1.shtml> visited on April 12, 2009

<http://www.self.org/nigeria1.shtml> visited on April 10, 2009

National Council on Science and Technology (2007) "A Brief on the Federal Ministry of Science and Technology, pp.148-154, *Communiqué of the 10th National Council on Science and Technology*," Minna, Niger State, 12th-15th November, 2007.

The functions of the Ministry of Science and Technology

- i. To promote the formulation and implementation of policies in Science and Technology in Kano State.
- ii. To create and popularize public awareness and support for Science and Technology as tools for development.
- iii. To promote and harness scientific and technological research as well as their practical application for the State's socio-economic advancement.
- iv. To encourage and support initiatives for innovation in the creation of new products and techniques especially in areas such as agriculture, industry, science and technology education, health, environment, construction, etc.
- v. To promote, support and sustain the spread of ICT knowledge and skills throughout the State particularly among the work force, youth and schools.
- vi. To establish, promote and maintain mutual and lasting synergy/linkages with appropriate state, federal and international agencies in Science and Technology.
- vii. To harness and nurture potentialities for local technologies as vehicles for socio-economic development.