PART I: GENERAL INFORMATION
(To be filled by the applicant)

1. **Project Title**: “A Study of Hemoglobin and Thyroid status of women during pregnancy and its impact on foetal outcome in Eastern Uttar Pradesh”

2. **Name of the Institution**: Mahatma Gandhi Post Graduate College, M.G. College Road, Bank Road, GORAKHPUR – 273 001 (U.P.)

3. **Name of the Investigator (s)**: Dr. S.K. Prabhuji (PI) and Dr. D.K. Srivastava (Co-PI)

4. **Broad subject area**: “Societal Programme for Women”

5. **Duration**: Years: 3 years Months: ______________

6. **Total cost**: Rs. 86.70 Lakhs

7. **Project Summary**: Iodine Deficiency Disorders (IDD) and anemia, a global phenomenon existing since ages, affects approximately 2000 million people of the World. Recent investigations have demonstrated conclusively that deficiency of iodine in the human body not only leads to endemic goitre and cretinism, but to a very large number of disorders starting from the intra-uterine stage of human life and continuing till the adolescent age. Abortions, still-births, congenital abnormalities and various degrees and types of neuro-motor dysfunctions and mental and physical retardation are produced by iodine deficiency in human body. The consequences of anemia for women include increased risk of low birth-weight or prematurity, perinatal and neonatal mortality, inadequate iron stores for the newborn, increased risk of maternal morbidity and mortality, and lowered physical activity, mental concentration, and productivity. In north-east “tarai” region of Uttar Pradesh, i.e., the remote areas of Gorakhpur, Maharajganj, Deoria and Kushinagar districts (the study areas in this Project), the situation is rather worse. The studies, during the proposed project, will be conducted on women of eastern Uttar Pradesh. The target groups will be the women-folk in the city and different tahsils (well connected with roads, with facilities of schools and Primary Health Centre) of Gorakhpur, Maharajganj, Deoria and Kushinagar districts. The studies will include survey, training programme and training of resource persons of the area, scientific intervention and remedial measures.

8. **Keywords**: Anemia, hemoglobin, thyroid status, women, pregnancy, foetal outcome.
PART II: PROFILE OF THE INVESTIGATORS AND THE INVESTIGATING AGENCY

9. Principal Investigator

Name: Dr. Shakti Kumar Prabhuji

Designation: Associate Professor (Director)

Department: Biotechnology and Molecular Biology Centre

Institute/University: Mahatma Gandhi Post Graduate College, Gorakhpur – 273 001.

Address: Director, Biotechnology and Molecular Biology Centre, Mahatma Gandhi Post Graduate College, M.G. College Road, Bank Road, Gorakhpur (U.P.)

Pin: 273 001

Telephone: +91 9839229079 Telex ___________ Fax ___________

E-mail: shaktiprabhuji@rediffmail.com; shaktiprabhuji@gmail.com

Date of Birth: January 07, 1954 Sex: Male SC/ST: No

Attach bio-data, as per the proforma, giving positions held, publications etc.

10. Co-Investigator (s)

Name: Dr. Dhirendra Kumar Srivastava

Designation: Professor and Head

Department: Social and Preventive Medicines (SPM Department)

Institute/University: B.R.D. Medical College, Gorakhpur (U.P.)

Address: Professor and Head, S. P. M. Department, BRD Medical College, Gorakhpur (U.P.)

Pin: 273 013

Telephone: (0551) – 2502310, Mob. 09839473140; Telex ______ Fax ___________
11. **Description of the implementing agency(ies)** (Please enclose the paper regarding the Registration Certificate, MoA including By-laws and mandate, Audit statement of accounts for the last three years, Annual report including activity profile for last three years in case of NGOs.)  

Not a NGO

a. Background of the agency, work being done. List of ongoing and completed projects, during the last 10 years indicating the name of the granting agency, duration and quantum of funding.

b. Expertise available with the proposed investigating group/institution for implementing the project.

c. Infrastructure available (including equipments).
PART III: TECHNICAL DETAILS OF PROJECT

12. Introduction

Iodine Deficiency Disorders (IDD) and anemia, a global phenomenon existing since ages, affects approximately 2000 million people of the World (Clement, 1960). In India, it is estimated that 150 million people are at risk from IDD of which 54 million have goitre, 2.2 million are cretins and 6.6 million have other milder neurological deficit (Pandav, 1983). Recent investigations have demonstrated conclusively that deficiency of iodine in the human body not only leads to endemic goitre and cretinism, but to a very large number of disorders starting from the intra-uterine stage of human life and continuing till the adolescent age. Abortions, still-births, congenital abnormalities and various degrees and types of neuro-motor dysfunctions and mental and physical retardation are produced by iodine deficiency in human body. The total number of still-births and neo-natal deaths attributable to iodine deficiency is over 90,000 per year. With every passing hour 10 children are being born in India who will not attain their optimal mental and physical potential due to neo-natal hypothyroidism (Pandav et al., 1989).

Iodine deficiency is now considered most common cause of preventable brain damage in the world today (WHO, 1994). The term IDD (proposed by Hetzel, 1983) refers to all the effects of iodine deficiency on growth and development of a human and animal population, which can be prevented by correction of the iodine deficiency. These include goitre, stillbirths, neonatal and other types of hypothyroidism but the most important effect is that of foetal brain damage (Table 1).

Table 1: The spectrum of Iodine Deficiency Disorders (IDD)

<table>
<thead>
<tr>
<th>Foetus</th>
<th>Abortions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stillbirths</td>
</tr>
<tr>
<td></td>
<td>Congenital anomalies</td>
</tr>
<tr>
<td></td>
<td>Neurological cretinism (mental deficiency, deaf mutism, Spastic diplegia, squint)</td>
</tr>
<tr>
<td></td>
<td>Hypothyroid cretinism (mental deficiency, dwarfism, hypothyroidism)</td>
</tr>
<tr>
<td></td>
<td>Psychomotor defects</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neonates</th>
<th>Increased perinatal mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neonatal hypothyroidism</td>
</tr>
<tr>
<td></td>
<td>Retarded mental and physical development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child and Adolescent</th>
<th>Increased infant mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retarded mental and physical development</td>
</tr>
</tbody>
</table>

| Adult                        | Goitre with its complications |
|------------------------------| Iodine-induced hyperthyroidism (IIH) |

| All ages                     | Goitre                         |
|------------------------------| Hypothyroidism                 |
|                              | Impaired mental function       |
|                              | Increased susceptibility to nuclear radiation |
In north-east “tarai” region of Uttar Pradesh, i.e., the remote areas of Gorakhpur, Maharajganj, Deoria and Kushinagar districts (the study areas in this Project), the situation is rather worse. It is apparent that reduced mental function due to brain hypothyroidism is widely prevalent in this area. People who are resident of this area, particularly remote places of Padrauna (presently the head-quarter of District: Kushinagar) are often referred to as “Fools”. This indicates that iodine deficiency can be a major obstacle to the human and social development of communities living in an iodine deficient environment.

In India, recent nationally representative data from the National Family Health Survey 1998=1999 (International Institute of Population Sciences and ORC Macro, 2000) on anemia of women of reproductive age describe the magnitude of the problem. More than one third of Indian women have a body mass index (BMI) <18.5 kg/m$^2$, reflecting chronic energy and micronutrient deficit. The prevalence of anemia among all women in the Indian sample is 52%. Fifteen percent of these women are classified as moderately anemic (Hb 70 – 99 g/l) and 2% as severely anemic (Hb <70 g/l). World-wide position about pre-school aged children has been shown in Fig. 1. The consequences of anemia for women include increased risk of low birth-weight or prematurity, perinatal and neonatal mortality, inadequate iron stores for the newborn, increased risk of maternal morbidity and mortality, and lowered physical activity, mental concentration, and productivity (Gillespie & Johnston, 1998; Stoltzfus, 1997; Allen, 1997). Women with even mild anemia may experience fatigue and have reduced work capacity (Gillespie, 1998).

Fig. 1: Anemia as a public health problem in pre-school aged children
(Dark black areas indicate ≥40%)
Early detection of anaemia can help to prevent complications related to pregnancy and delivery, as well as child development problems. Information on the prevalence of anaemia can be useful for the development of health-intervention programme designed to prevent anaemia, such as iron-fortification programme. In India, under the Government’s Reproductive and Child Health Programme, iron and folic acid tablets are provided to pregnant women in order to prevent anaemia during pregnancy (WHO Report).

Table 2: Percentage of pregnant women having variable grades of severity of anemia in eastern U.P.

<table>
<thead>
<tr>
<th>Severity of anemia</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (&gt; 11.0 g/dl)</td>
<td>7.62</td>
</tr>
<tr>
<td>Mild anemia (10.0-10.9 g/dl)</td>
<td>39.66</td>
</tr>
<tr>
<td>Moderate anemia (7.0-9.9 g/dl)</td>
<td>49.09</td>
</tr>
<tr>
<td>Severe anemia (&lt; 7.0 g/dl)</td>
<td>3.63</td>
</tr>
</tbody>
</table>

Physiological studies indicate that the mother’s thyroid glands ordinarily enlarge up to 50 percent during pregnancy and increase its production of thyroxine a corresponding amount. The increased thyroxine production is cause at least partly by a thyrotropic effect of Human Chorionic Gonadotropin and by small quantities of a specific Thyroid Stimulating Hormone (TSH), Human Chrionic Thyrotropin, secreted by the placenta (Guyton and Hall, 1996).
Major reasons for the high incidence of complications, during pregnancy including the problems behind conception and neo-natal disorders due to IDD and anemia, have been found to be:

1. Lack of proper awareness regarding the normal balanced diet in general and the ignorance about the importance of iodine and iron.
2. Educational and socio-economic constraints and practices affecting the females who are exposed to social discrepancy and are poorly fed. How can we expect a healthy progeny from a female already suffering from IDD and anemia?
3. Improper salt storage practices and washing of salt before the use by rural folk which results in reduced amount of iodine content of the salt (far below the desirable amount) that reaches at the consumer level.

The studies will be conducted on women of eastern Uttar Pradesh. The target groups will be the women-folk in the city and different tahsils (well connected with roads, with facilities of schools and Primary Health Centre) of Gorakhpur, Maharajganj, Deoria and Kushinagar districts.

The areas selected for the study (City and the tahsils of Gorakhpur, Maharajganj, Deoria and Kushinagar districts) are urban as well as rural and are located 20 – 80 km from the Implementing Agency which are well connected by road. The urban areas have schools / colleges (primary convent level to Post Graduate level) and Health facilities from PHCs to District Hospitals whereas the rural areas have schools up to Intermediate level (at some places Degree Colleges too) and Health facilities of PHCs. The education of the urban population, in majority, is graduation and above with occupation and skills accordingly except the population migrated from rural background that have below secondary level education and have corresponding occupation and skills. However, the problem (anemia and iodine deficiency disorders) lies with the women-folk which is almost identical in urban as well as in rural areas, due to following two reasons:

I. In rural women the problem develops due to lack of awareness (low education level) and malnutrition.

II. The urban women are mostly well educated and their awareness level is high, but, face the same problem because of their preference and liking for fast food over the normal meals and secondly, by modifying their normal diet to low-calorie / low-fat meals to maintain their lean and thin body form and in so doing they become malnourished.

13. Objectives:

1. To study the nutritional status of women-folk in the target area.
2. To study the thyroid status and iron deficiency (hemoglobin level) of women during pregnancy.
3. To study the bio-social and environmental factors of these women and its relationship with their thyroid and iron deficiency (hemoglobin level) status.
4. To study the foetal outcome of these women and its relationship with their thyroid and iron deficiency (hemoglobin level) status.
5. To suggest the easy and low cost strategies for better control of thyroid and iron deficiency (hemoglobin level) status during pregnancy.

The studies will be conducted on women of eastern Uttar Pradesh. The target groups will be the women-folk in the city and in different tahsils of Gorakhpur, Maharajganj, Deoria and Kushinagar districts.

14. Methodology

a. Target area: Eastern Uttar Pradesh

Beneficiaries: City area (500 women) and five villages in each tahsil (100 women in each village). The basis of selection of beneficiaries will be decided following a survey regarding assessment of nutritional status of women in the area and a random sampling about anemia and thyroid status.

b. Nature of intervention: Preliminary survey, Awareness campaign (demonstration), Research and Training. Scientific intervention of providing supplemented food to a group of pregnant women for full term period and comparison of results with control group will be done. Regular feedback will be obtained from the beneficiaries.

15. Work Plan: under the following heads on separate sheets

The studies will be conducted on women of eastern Uttar Pradesh. The target groups will be the women-folk in City and different tahsils of Gorakhpur, Maharajganj, Deoria and Kushinagar districts. The women will be examined for their thyroid and hemoglobin status using appropriate biochemical tests which will be done –
(a) at the time of first visit (at first trimester of pregnancy),
(b) subsequently at the terminal end of the pregnancy (at the time of delivery).
(c) For a general assessment 50 individuals (non-pregnant) between age group of 18 – 25 yrs. In each tahsil at monthly interval.

(a) Methodology (tools/protocols to be used and mechanism to involve target population)

The study will include the examination of the subjects for their clinical status for thyroid and hemoglobin. The foetal outcome will be measured at the termination of pregnancy and the same will be recorded. We expect to cover more than 5000 women
both in non-endemic/endemic areas. As per the methodology used, there will be four groups of women at the time of enrolment.

(a) Women having normal thyroid function (exhibiting TSH, T3 and T4 levels within the normal range of functional activity).
(b) Women exhibiting hypothyroidism.
(c) Women exhibiting hyperthyroidism.
(d) Women exhibiting anemic condition.

In the first group having the normal thyroid function the individuals will be monitored throughout the gestation period and, following the delivery the newborn will be assessed for any neo-natal disorders. The second, third and fourth groups are the target groups which will be put to a careful testing and proper analyses. The corrective measures will be applied to these groups and the effect of the positive or negative corrections will be assessed by thyroid function and hemoglobin level tests and finally, by assessment of the neo-natal disorders, if any, at the time delivery and in later three months period.

For scientific intervention studies at each site, a group 50 pregnant women will be supplemented with iron/folic acid/green leafy vegetables/iodine source etc. during pregnancy and the impact will be studied. Simultaneously, a control group of 50 pregnant women will be taken to whom there will be no intervention only data will be recorded for IDD and anemia. A comparison of these two groups will provide data on the level of impact of rectifying measures and the pregnancy outcome. Such studies will continue for 2 – 3 years on each study-site.

As the endocrine studies have indicated a higher level of thyroid activity during the pregnancy period, it would be a challenging task to assess whether the hyper-activity of thyroid is a normal phenomenon or is the part of hyperthyroidism. Therefore, the development of the rectification procedures will also be an important task.

(b) Organization of work elements:

The total work plan will be set in the following order so as to complete the project work in a systematic way:

i. At the onset of the programme a survey will be done to determine the nutritional status of the inmates of the study areas; and to identify the hemoglobin and thyroid status among women-folk to categorize them distinctly. Moreover, the scientific intervention study will be started, from the beginning, with the selected group of pregnant women in each area.

ii. To organize an “Awareness Programme” in each study area to make the inmates acquainted of the actual situation and to provide them the remedial measures to rectify the shortcomings.

iii. To take blood samples from the different categories of women-folk for the analysis of their hemoglobin and thyroid status; and following data analysis they will be suggested and provided the methods of rectification. Special
emphasis will be made on the pregnant beneficiaries and their hemoglobin and thyroid status will regularly be monitored.

iv. To organize a “Training Programme” for five persons (two senior and three young women) in each village. These trained personnel will be helpful in monitoring the hemoglobin and thyroid status among women-folk during the later part of the Project and will function as the “Resource Persons” in the village for monitoring the situation following the completion of the Proposed Project.

v. The foetal outcome will be measured at the termination of pregnancy and the same will be recorded.

(c)Time schedule of activities giving milestones (including no. of training, duration, workshops if any)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Milestones</th>
<th>Expected Start (month/year)</th>
<th>Expected Completion (month/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Awareness Programmes</td>
<td>April-May, 2012 (start of Project)</td>
<td>For two days at each site</td>
</tr>
<tr>
<td>2</td>
<td>Training Programme for five persons in each village</td>
<td>July, 2012 (after three months of start of Project)</td>
<td>For five days at the Nodal Centre</td>
</tr>
<tr>
<td>3</td>
<td>Scientific Intervention studies</td>
<td>April-May, 2012 (start of Project)</td>
<td>Two years</td>
</tr>
</tbody>
</table>

16. How will the project benefit the target population?

In general, the Iodine and iron deficiency is prevalent in the eastern Uttar Pradesh which directly or indirectly affects the general health of the women-folk of the region and also affects the health and development of their future generations.

The findings of the study will be helpful in diagnosing thyroid and iron deficiency status, in general, and during the pregnancy and it would be easier to pay extra attention to the women who otherwise have lost. Further, simple and cost effective methods to rectify the thyroid and iron deficiency status will also be a part of the present study.

The awareness building campaign in each study area, before and in between the study period, will definitely be helpful in raising the awareness level among the women-folk. Regular feedback and assessment at a particular interval will reflect the results. At least five women (elderly and young both) will be trained fully, in each study area, to monitor the nutritional status as well as the parameters related with thyroid status and the hemoglobin status in women. We expect more than 5000 women will be benefitted every year through the proposed Project.
17. **Parameters to be used for evaluation of the impact:**

1. The nutritional status of the beneficiaries.
2. The hemoglobin status of the beneficiaries; and
3. The thyroid status (iodine deficiency level) of the beneficiaries.

18. **Comment on impact on the environment:**

The status of various parameters and the different methods of interventions during the Project period will not affect the environment negatively at all.

19. **Linkages with S&T Institution if any (A commitment/letter of consent of S & T institution to be enclosed.).**

No

20. **Details of raw materials/local resources needed in the project:**

Local Resource Persons (Medical and Research personnel) will be required during the Awareness Programme and Training Programme organized during the Project period.

21. **Techno-economic viability/cost benefit analysis (to include cash flow, working capital management, pay back period, etc.)**

22. **Comment on the possibilities of the activity becoming self-sustainable. (expected time):**

At least five women (elderly and young both) will be trained fully, in each study area, to monitor the nutritional status as well as the parameters related with thyroid status and the hemoglobin status in women. These trained volunteers will be able to look after the women-folk of their area in future following the completion of the proposed Project in three (3) years period and then, the proposed activity will become self-sustainable.

23. **Name, designation, address including e-mail address of 5 potential reviewers:**

i. Dr. S.K. Bhatnagar,  
   Professor and Head, Department of Cell Biology, College of Biotechnology,  
   Sardar Vallabh Bhai Patel University of Agriculture and Technology,  
   **MEERUT – 250 110 (U.P.)**  [Cell: 09412822433; E-mail:  
   drskb2000@yahoo.com]

ii. Dr. Reena Srivastava,
iii. Dr. A.K. Varma,
Consultant Pediatrician, District Hospital,
Deoria – 274 001 (U.P.) [Cell: 09415263771; E-mail: akhileshchhamta@yahoo.com]

iv. Dr. Ravi Pandey,
Consultant Gynecologist, District Female Hospital,
DEORIA – 274 001 (U.P.) [Cell: 09415586889]

v. Dr. Shubha Srivastava,
Department of Pathology, District Female Hospital,
DEORIA – 274001 (U.P.) [Cell: 09450882583; Email: drshubha01@gmail.com]

24. Cost sharing if more than one agency is involved: No

<table>
<thead>
<tr>
<th>Name of Agency</th>
<th>Address of Agency</th>
<th>Proposed Amount</th>
<th>Cost Sharing %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### PART IV: BUDGET ESTIMATE – SUMMARY*

(In Rupees)

<table>
<thead>
<tr>
<th>Item</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Recurring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Salaries/Wages (indicate designation, scale of pay and no. of persons)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Project Coordinator (PI) (Honorarium @ 10,000=00 p.m.)</td>
<td>1,20,000=00 0</td>
<td>1,20,000=00 0</td>
<td>1,20,000=00 0</td>
<td>3,60,000=00 0</td>
</tr>
<tr>
<td>➢ Co-Project Coordinator (Co-PI) (Honorarium @ 10,000=00 p.m.)</td>
<td>4,80,000=00 0</td>
<td>4,80,000=00 0</td>
<td>4,80,000=00 0</td>
<td>14,40,000=00 0</td>
</tr>
<tr>
<td>➢ Two Research Assistants (Salary) (@ 20,000=00)</td>
<td>2,40,000=00 0</td>
<td>2,40,000=00 0</td>
<td>2,40,000=00 0</td>
<td>7,20,000=00 0</td>
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<td>1,20,000=00 0</td>
<td>1,20,000=00 0</td>
<td>3,60,000=00 0</td>
</tr>
</tbody>
</table>

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*Note: Honorarium rates are indicative and subject to change.*
### 1. Cost Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Medical Technicians (@ 10,000=00 p.m.)</td>
<td>2,40,000=0</td>
<td>2,40,000=0</td>
<td>2,40,000=0</td>
<td>7,20,000=0</td>
</tr>
<tr>
<td>One Lady Health Worker (@ 10,000=00 p.m.)</td>
<td>1,20,000=0</td>
<td>1,20,000=0</td>
<td>1,20,000=0</td>
<td>3,60,000=0</td>
</tr>
<tr>
<td>Two Lab. Boys (@ 10,000=00 p.m.)</td>
<td>2,00,000=0</td>
<td>1,00,000=0</td>
<td>1,00,000=0</td>
<td>4,00,000=0</td>
</tr>
<tr>
<td>Driver for the Mobile Van (@ 10,000=00 p.m.)</td>
<td>1,00,000=0</td>
<td>1,00,000=0</td>
<td>1,00,000=0</td>
<td>3,00,000=0</td>
</tr>
<tr>
<td>Consumable Chemicals Glass-wares</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel (Fuel cost)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Costs (Contingencies)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### B. Non-Recurring:

Permanent Equipment

1. Hematological analyzer : 6,00,000=00
2. Hormone Analyzer : 15,00,000=00
3. Mobile sample collection Van (with refrigerator fitted) : 9,00,000=00
4. Two Computers (1+1 : PI and Co-I) : 1,00,000=00
24. Permanent Equipment*

<table>
<thead>
<tr>
<th>S. No</th>
<th>Generic name of equipment and accessories</th>
<th>Model</th>
<th>Imported/Indigenous</th>
<th>Estimated cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hematological analyzer</td>
<td></td>
<td></td>
<td>6,00,000=00</td>
</tr>
<tr>
<td>2.</td>
<td>Hormone Analyzer</td>
<td></td>
<td></td>
<td>15,00,000=00</td>
</tr>
<tr>
<td>3.</td>
<td>Mobile sample collection Van (with refrigerator fitted)</td>
<td>Dell 15R</td>
<td></td>
<td>9,00,000=00</td>
</tr>
<tr>
<td>4.</td>
<td>Computers (two)</td>
<td></td>
<td></td>
<td>1,00,000=00</td>
</tr>
</tbody>
</table>

**Justification for each equipment:**

Hematological analyzer is required to analyze blood samples (for Hb%, TLC and DLC) of the Beneficiaries.

Hormone Analyzer is required to analyze the thyroid function tests (TSH, T₃ and T₄) of the Beneficiaries.

Mobile sample collection Van is required to visit the village sites in different tahsils of Gorakhpur, Maharajganj, Deoria and Kushinagar districts.

Computers with analysis-software will be required with the PI and Co-PI both for analysis of the data and keeping all the records together.

25. Consumable Materials*

<table>
<thead>
<tr>
<th>Item</th>
<th>Year1</th>
<th>Year2</th>
<th>Year3</th>
<th>Total</th>
</tr>
</thead>
</table>

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Note: In case PIs are from different institutions, separate budget requirements should be furnished.
### Justification for each item:

**Chemicals:** Different chemicals will be required for the treatment of blood samples for the hematological and hormonal (thyroid status) analysis. The requirement will be more in the first year and later, maintenance will be made in second and third years.

**Glass-wares:** Glass-wares like blood sampling-tubes, test-tubes, flasks, beakers, ice-box, syringes, cotton, ELISA titre-plates etc. will be required. The requirement will be more in the first year and later, maintenance will be made in second and third years.

### 26. Travel*

<table>
<thead>
<tr>
<th>Item</th>
<th>Year1</th>
<th>Year2</th>
<th>Year3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel (diesel) for the Mobile sample collection Van</td>
<td>1,00,000=00</td>
<td>1,00,000=00</td>
<td>1,00,000=00</td>
<td>3,00,000=00</td>
</tr>
</tbody>
</table>

### Justification:

The team will visit the village sites in different tahsils of Gorakhpur, Maharajganj, Deoria and Kushinagar districts for following purpose:

- The survey for the nutritional status of the inmates and identification of the beneficiaries in the study area.
- Awareness campaign in the study areas.
- Training Programme for the development of future resource persons.
- Blood sample collections from the beneficiaries of each district at weekly interval to cover all the villages on 7x4 (seven days in one district) basis.
- Scientific intervention studies.
- Collection of feedback data.
PART V: DECLARATION/CERTIFICATION

It is certified that

a) the same project has not been submitted to any other agency/agencies for financial support/or already not completed with the financial support from other funding agencies.

b) the scale of pay, allowance, etc. proposed are those admissible to persons of corresponding status employed in the Institute/University/NGO/Voluntary Organisation, and are in accordance with the guidelines on emoluments for research personnel as contained in Annexure – III

c) it is agreed that any research outcome or intellectual property right(s) on the invention(s) arising out of the project shall be taken in accordance with the instructions issued with the approval of the Ministry of Finance, Department of Expenditure, as contained in Annexure-V.

d) the institute welcomes participation of Dr. Shakti Kumar Prabhuji as the Principal Investigator and Dr. Dhirendra Kumar Srivastava as the Co-Investigator for the project and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume responsibility of the fruitful completion of the project (with due intimation to DBT).

(Dr. R.K. Khare)
Principal
M.G. Post Graduate College, Gorakhpur – 273001 (India)
Signature of Executive Authority
of Institute/ University with Seal with date

(Dr. S.K. Prabhuji)
Signature of Principal-Investigator with date

(Dr. D.K. Srivastava)
Signature of Co-Investigator with date
PART VI: PROFORMA FOR BIO-DATA OF INVESTIGATORS

27. Name: Dr. SHAKTI KUMAR PRABHUJI
Date of Birth: January 07, 1954   Sex: Male   SC/ST: No
Designation: Associate Professor (Director)
Department: Biotechnology and Molecular Biology Centre

Institute/University: M.G. Post Graduate College, Gorakhpur – 273001 (U.P.)
(affiliated to DDU Gorakhpur University, Gorakhpur – 273009).

Address: Biotechnology and Molecular Biology Centre, M.G. Post Graduate College, M.G. College Road, Bank Road, Gorakhpur – 273001 (U.P.)

Pin: 273 001   Telephone: 0551-2242332; Mobile: +91 9839229079
E-mail: shaktiprabhuji@rediffmail.com

Education (Post-graduation onwards) & Professional Career

<table>
<thead>
<tr>
<th>Sl No</th>
<th>University/Institution</th>
<th>Degree Awarded</th>
<th>Year Award /Prize/ Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gorakhpur University, Gorakhpur. (St. Andrew’s College, Gorakhpur)</td>
<td>M.Sc.</td>
<td>1974</td>
</tr>
<tr>
<td>2.</td>
<td>Gorakhpur University, Gorakhpur. (St. Andrew’s College, Gorakhpur)</td>
<td>Ph.D.</td>
<td>1979</td>
</tr>
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</table>

28. Research Experience in various institutions (if necessary, attach separate sheets).

29. Publications (number only)

<table>
<thead>
<tr>
<th>Books</th>
<th>Research Papers/Reports</th>
<th>General Articles</th>
<th>Patents</th>
<th>Others (Please specify)</th>
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<td>16</td>
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</table>

Note: Principal Investigator and Co-Investigators should provide their bio data in this format.
Place: Gorakhpur

Date: February 22, 2012

Signature of the Principal Investigator

30. Name: Dr. Dhirendra Kumar Srivastava
    Date of Birth: June 01, 1954      Sex: Male      SC/ST: No
    Designation: Professor
    Department: Department of Social and Preventive Medicine

    Institute/University: B.R.D. Medical College, Gorakhpur – 273 013 (U.P.)
    (affiliated to DDU Gorakhpur University, Gorakhpur – 273009).

    Address: Department of Social and Preventive Medicine, B.R.D. Medical College,
            Gorakhpur – 273 013 (U.P.)

    Pin: 273 013          Telephone: 0551-2502310; Mobile: +91 9839473140
    E-mail: vbdsugorakhpur@yahoo.co.in

Education (Post-graduation onwards) & Professional Career

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<th>Year Award /Prize/Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>BRD Medical College, Gorakhpur (Gorakhpur University, Gorakhpur.)</td>
<td>M.B.B.S.</td>
<td>1978</td>
</tr>
<tr>
<td>2.</td>
<td>Date of completion of Internship</td>
<td>M.B.B.S.</td>
<td>June 09, 1980</td>
</tr>
<tr>
<td>3.</td>
<td>BRD Medical College, Gorakhpur (Gorakhpur University, Gorakhpur.)</td>
<td>M.D. (SPM)</td>
<td>1983</td>
</tr>
</tbody>
</table>

31. Research Experience in various institutions (if necessary, attach separate sheets).

32. Publications (number only)

| Books | Research Papers/Reports | General Articles | Patents | Others (Please specify) |
Note: Principal Investigator and Co-Investigators should provide their bio data in this format.

Place: Gorakhpur

Date: February 22, 2012

Signature of the Co-Investigator

33. List of other ongoing projects/programmes aiming at women upliftment/welfare.

- Nil -

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Title of the Project</th>
<th>Funding Agency</th>
<th>Duration From To</th>
<th>No. of Scientists/Associates working Under the project</th>
<th>Total approved cost of the Project (in Lakhs)</th>
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