

Quarterly Newsletter

AGRI-CONNECTION

September 2021 | Volume 6, Issue 3



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"जननी जन्मभूमिश्च स्वर्गादपि गरीयसी"



WWW.NAPAAMERICAS.ORG
napa2072@gmail.com

Message from the President

Dr. Megha N. Parajulee, NAPA President



Dear members and NAPA global friends,

Welcome to the 21st issue of **NAPA Quarterly Newsletter, *Agri-Connection***. The *Agri-Connection* newsletter has been the hallmark of our organization's communication among members and beyond. The first issue (September 2016) set the stage for continuing consistency, quality, impact, and public outreach as its fundamental tenets; these traits have made this publication our organizational mouthpiece. Please join me in congratulating the A-C editorial team for another excellent newsletter during this festive season. Major highlights of this issue include the upcoming Third NAPA International Conference, NAPA endowment, RMG workshops, and three scientific articles. You may also recall that NAPA developed and adopted a vision statement earlier this year, and A-C prominently highlights its organizational vision statement on its cover page - **Prosperity through Agricultural Transformation** – to remind readers of the scope and value of NAPA.

The Research Mini-Grant (RMG) program (NAPA-sponsored research funding and advisory service) during the 2020-2022 cycle has focused on research capacity building through undergraduate student research and training. The RMG Program is one of NAPA's flagship programs that invests in preparing the next generation of young scientists, professionals, policymakers, and entrepreneurs. We have funded 16 proposals across a wide area of agricultural and allied disciplines. In addition, RCBC organized a series of virtual workshops on research methodology, research ethics, survey tool development, and data analysis for grant recipients throughout the grant period. Despite the COVID-19 pandemic, 14 projects have undergone research activities according to the expected timeline. The mid-term progress review of our RMG projects is done. We plan to synchronize the final research report symposium with NAPA Biennial International Conference 2022.

We are very encouraged with the enormous support for our endowment effort from all corners of our society. The initial momentum of endowment contribution and pledge suggests that NAPA is on the path of continued programmatic growth and financial sustainability. The Endowment Fund Advisory Board has already opened the investment account at Vanguard and begun to invest at various risk-to-return scenarios. I urge all of you to join this effort and consider contributing to the NAPA Endowment Fund. A strong financial foundation will allow NAPA to serve its members well and align its programs and activities towards achieving its visionary goals.

The Executive Committee is quite pleased with the planning and progress of the Third Biennial International Conference (May 27-29, 2022) for an onsite meeting in Atlanta, Georgia. The conference theme *Advancing Agriculture in a Changing World* is expected to capture current challenges facing the agricultural landscape, including the ongoing pandemic, climate change, biotechnological changes, and others. The Conference Organizing Committee (COC), under the chairmanship of NAPA Advisor Dr. Nanda P. Joshi, has coordinated with all its conference committees for timely announcement of conference activities and timelines. The Scientific Program Committee has already called for the submission of paper/poster titles and abstracts. The Third Scientific Conference will again highlight popular conference programs of the previous two conferences, as well as new, exciting programs, including student research paper oral/poster competition, student essay writing contest, Agri-poem competition, Rapid-fire presentation, workshops, and symposia. We have selected an excellent conference venue in Atlanta with negotiated hotel rates and conference spaces to ensure that our delegates will have relaxed accommodation, convenient dining options, and overall great interactions and experience. While COC is busy developing the detailed modality of the conference, it plans to offer a virtual attendance opportunity for overseas attendees and/or students so that the travel restrictions or other logistics do not prevent people from attending and sharing their science from throughout the world.

In closing, I would like to remind you that my presidential motto throughout this EC term is to encourage all NAPA members to connect, advocate, engage, and contribute to move NAPA forward.

Happy Vijaya Dashami, Dipawali, Mha Puja, and Chhath Parva – 2078 B.S. Stay Safe.

Editorial

Despite the fact that enough food is produced to feed everyone on the planet today, over 800 million people across the world go to bed hungry every night. Small land-holding farmers produce about 70% of the global food supply, yet they face chronic food insecurity. Therefore, investing in these smallholder farmers, many of whom are women, and the food systems that nourish them, is more important than ever. We urge the global community to work together to expedite the transformation of food production and supply systems by applying new and existing technologies and bring tangible benefits to those in need.

The current issue has highlighted the upcoming 3rd NAPA Biennial International Scientific Conference, which will be held from May 27 to 29, 2022 in Atlanta, Georgia, with the theme “Advancing Agriculture in the Changing World.” Please save your date for this special event. This issue also summarizes NAPA’s initiatives and achievements on organizational development, networking, research-funding, and charitable activities. The KidsZone is adorned with two wonderful articles. We also have featured a NAPA member and agricultural entrepreneurs of the quarter. In addition, important articles on basmati rice, tunnel boring machine technology, and the role of demographic dividend in Nepalese agriculture make this issue very special to our readers.

Please be a part of Agri-Connection by reading, writing, and sharing your feedback. May your festival season be fun-filled and adventurous, and so be your life.

Happy Vijaya Dashami, Dipawali, Mha Puja, and Chhath Parva - 2078 B.S.

AGRI-CONNECTION

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Agri-Connection Editorial Board invites and encourages you to send us your articles, intellectual ideas, opinions, thoughts, perspectives, memoirs, and literary creations.

Email: agricconnection2072@gmail.com

cc: ag.sushilthapa@gmail.com

After the grand success of two International
Conferences in 2018 and 2020,
NAPA proudly announces:



**3rd NAPA BIENNIAL
INTERNATIONAL SCIENTIFIC
CONFERENCE**

MAY 27-29, 2022 (MEMORIAL WEEKEND)

“Advancing Agriculture in a Changing World”

VENUE:



**SONESTA ATLANTA AIRPORT NORTH
1325 Virginia Avenue
Atlanta, GA 30344, USA**



For more information:

www.napaamericas.org/conference-2022.php

Please save the date!



NAPA 2022
3rd BIENNIAL INTERNATIONAL
SCIENTIFIC CONFERENCE
 MAY 27-29, 2022 ATLANTA, GA, USA

Call for Abstracts

Dear all valued NAPA members and beyond,

Association of Nepalese Agricultural Professionals of Americas (NAPA) Conference Organizing Committee (COC) is pleased to announce the call for abstracts for the 3rd NAPA Biennial International Scientific Conference with the theme “**Advancing Agriculture in a Changing World.**” This call solicits abstracts for oral and poster presentations. Abstract submitted should be within the disciplines of Agricultural and Allied Sciences and should fit under the topics listed below. Abstract, focused directly or indirectly to achieve sustainable supplies of food, feed, fuel, and fiber (4F) to meet the need of current and future generations are strongly encouraged.

Graduate and undergraduate students must indicate their interest in participating in oral and poster competitions in the submission form. There will be an opportunity to publish selected research papers in NAPA’s Global Journal of Agricultural and Allied Sciences (GJAAS).

The abstract should be limited to **250-300** words. Please adhere to the following format when submitting an abstract:

Topic Areas (including but not limited to)

Crop and Soil Sciences: Agronomy; Soil Science; Horticulture; Viticulture and Enology; Plant Pathology; Entomology; Plant Breeding and Genetics; Molecular Biology; Crop/Biotech Engineering and Technology; Agrobiodiversity; Weed Science; Smart/Digital/Precision Farming Practices .

Animal, Veterinary and Aquaculture Sciences: Animal Sciences; Animal Behavior and Welfare Science; Comparative and Veterinary Medicine; Aquaculture; Animal/Biotech Engineering and Technology; Animal Production and Management.

Social Sciences: Agricultural Education; Agricultural and Resource Economics; Agricultural and Rural Sociology; Sociology of Agriculture; Agricultural Statistics and Research Methods; Food Security; Gender in Agriculture; Migration; Remittances and Agriculture; Subsistence Farming and Rural Livelihoods.

Allied Sciences: Forestry/Agroforestry; Meteorology/Climate Science; Natural Resources Management; Food and Nutrition Sciences/Technology; Water and Environmental Sciences; Agricultural Statistics and Research Methods; Biomedical Sciences; Polymers in Ag-

riculture; Sustainable Agriculture; Organic Farming; Agricultural Engineering; and any related disciplines.

All abstracts should be submitted through the online submission system available on the conference website: <https://www.napaamericas.org/conference-2022.php>.

Important Dates

Call for abstracts: September 10, 2021

Abstract submission deadline: December 31, 2021 (11:59 PM EST)

Notification of abstract acceptance: February 1, 2022

Travel Support

A limited number of travel grants (registration and/or accommodation; no airfare support) may be available to support students and young scholars from developing countries. Scholars from outside North America and any student member who would not be able to attend the conference in-person will have an opportunity to attend and/or present papers/posters virtually.

Best Oral/Poster Presentation Award for Students

The three outstanding oral and poster presentations, each, will be awarded a cash prize of \$250, \$150, and \$100 for first, second and third positions, respectively, along with a certificate of appreciation.

Please submit:

Paper Title:

Author(s) and Affiliation(s):

Email of Corresponding Author:

Presenting Author:

Discipline: Select the most applicable discipline from the list

Keywords: Enter three to five keywords

Abstract: Include a brief introduction, objective(s), methods, results/expected results, and discussion and conclusions.

Font Type and Size: Times New Roman; 12 points

Margin: 1 inch all sides

Line Spacing: Single



NAPA 2022

3rd BIENNIAL INTERNATIONAL SCIENTIFIC CONFERENCE

MAY 27-29, 2022

ATLANTA, GA, USA

Call for Essay/Student Writing Contest

Association of Nepalese Agricultural Professionals of Americas (NAPA) Conference Organizing Committee is pleased to announce the call for 2022 College and University Students' Essay Writing Contest for its 3rd Biennial International Scientific Conference (<https://www.napaamericas.org/conference-2022.php>). A full-time student enrolled in a college, including community or vocational college, and/or university around the globe pursuing a degree in agricultural or allied fields is eligible to participate.

Essay Topic: “Advancing agriculture for global food security and prosperity in a changing world”

General guidelines

- The essay should be written in English language.
- The essay must be author's original work and should be attested by inserting a statement followed by author's full name.
- The essay should follow the standard academic essay structure and format that includes a concise abstract followed by an introduction with a thesis statement(s) along with logically organized body of supporting arguments using headings/sub-headings leading to a conclusion(s) and future perspectives.
- The essay can be developed based on student's own experience, online research, and scientific literature review.
- Appropriate credits must be given to the work of others through appropriate citation. The essay will be disqualified for the competition if any evidence of plagiarism is established. The committee strongly discourages plagiarism of any form and advises students to avoid engaging in such activity.
- The essay should include a complete list of references cited in the reference section. The references should be formatted using APA style (<http://www.apastyle.org/>), examples are available at the reference section of NAPA's journal website:

<https://giaas.org/index.php/GJAAS/authorGuideline>.

- The essay should not exceed 3,000 words, excluding footnotes, tables, figures, and references. The texts should be formatted double-spaced, and 12-point Times New Roman font size. Margin should be 2.5 cm (1 inch) on all sides.
- The essay should have author's name, affiliated college and/or university, degree program, mailing address, and email ID. A proof of student status is required (e.g., student ID card with an expiration date or unofficial transcript or a letter from the college or university certifying the student's full time status on or before the closing date).
- A pdf or word copy of the essay must be uploaded online at: <https://www.bitly.com/NAPA-SWC>. The pdf or word file should be named “NAPA_2022_SWC_STUDENT_FULL_NAME_COLLEGE_OR_UNIVERSITY_NAME.”
- The deadline for submission is **January 31, 2022**.
- Only one essay can be submitted per contestant. The results of the essay writing contest will be notified only to the winners prior to the conference.
- The first, second, and third place winners will be awarded with a certificate and cash prizes of \$250, \$150, and \$100, respectively at the conference during May 27-29, 2022 in Atlanta, Georgia, USA. Winners are encouraged (but not required) to be physically present at the award ceremony.

If you have any questions/concerns, please contact **Dr. Bharat Pokharel, Chair, Student Writing Contest Committee** at Bharat.Pokharel@gmail.com.

All full-time students are highly encouraged to participate in this contest.



NAPA 2022

3rd BIENNIAL INTERNATIONAL SCIENTIFIC CONFERENCE

MAY 27-29, 2022

ATLANTA, GA, USA

Appeal for Conference Sponsorship

The NAPA 3rd Biennial International Scientific Conference Organizing Committee is working hard to make the conference a grand success. The conference will be held during May 27-29, 2022 in Atlanta, Georgia, USA on the theme ‘**Advancing Agriculture in a Changing World.**’ For details, please visit <https://www.napaamericas.org/conference-2022.php>. This is a great scientific platform for students, academicians, and professionals who are engaged in but not limited to teaching, research, extension, community development, and entrepreneurial activities in the field of Agricultural and Allied Sciences across the world to attend and present papers/posters in-person or virtually and win various awards as presented below. The **conference registration fee will be nominal to allow an opportunity for maximum participation of students and early career professionals.** Primary source to fund these awards is through the generous support from our sponsors and/or members. You have opportunities to donate any of the designated levels or sponsor an event/prize in **your name or name of beloved ones.** We appreciate and welcome any amount of donations to recognize and reward great minds at this historic conference.

Events sponsorship opportunities (Amount in USD):

| Events | First Prize | Second Prize | Third Prize | Event Total |
|---|---|--------------|-------------|-------------|
| Student Oral Presentation | 250 | 150 | 100 | 500 |
| Student Poster Presentation | 250 | 150 | 100 | 500 |
| Student Essay Writing Contest | 250 | 150 | 100 | 500 |
| Agri-Poem Contest | 250 | 150 | 100 | 500 |
| Student Rapid Fire Competition | 50 | 30 | 20 | 100 |
| Hotel Accommodation (Room) Sponsorship | One room for 1 night (\$99), One room for 2 nights (\$198), One room for 3 nights (\$297) | | | |

Sponsorship levels: ≥\$1,000: Platinum; \$500-\$999: Diamond; \$300-\$499: Gold; \$100-\$299: Silver; \$50-\$99: Bronze; <\$50: Green (Please note: “**NAPA donations are tax deductible**”).

Donations can be paid in three different ways:

Free electronic wire transfer using **Zelle** from several major banks in the USA to napa2072@gmail.com. Please write the purpose of payment – (e.g., donation for NAPA Biennial Conference, event name, and name of sponsor or your beloved ones).

PayPal or Credit/Debit Cards: Click the **donate** button on the NAPA website (<http://napaamericas.org/donate.php>) and pay using PayPal or Credit/Debit Cards. Please write the purpose of payment in the ‘additional information’ box.

Mail a Check: Please contact NAPA (napa2072@gmail.com) to mail a check.

Please find the information about our past conferences:

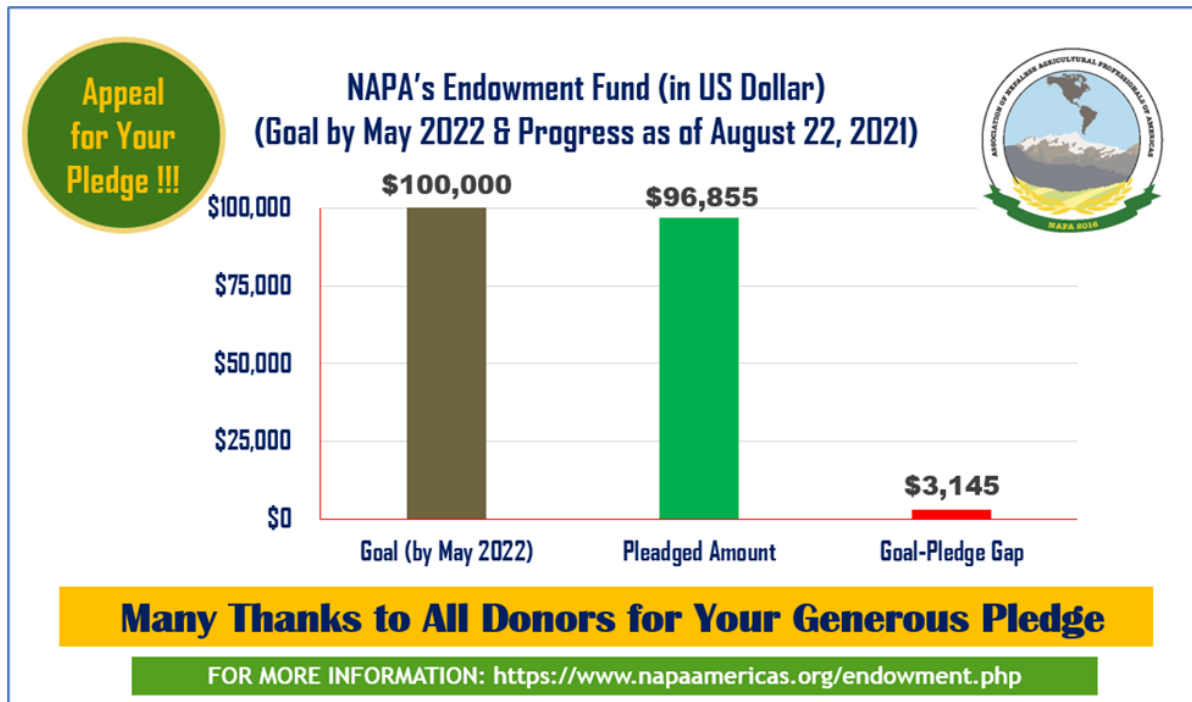
Second Conference (2020): <https://napaamericas.org/conference-2020.php>

First Conference (2018): <https://napaamericas.org/conference2018/index.php>

NAPA Endowment Fund Update and its Investment Foresights

1. Pledge and progress

After the formal establishment of the NAPA Endowment Fund in January 2021, with the goal of achieving NAPA's economic and programmatic sustainability, as of August 22, 2021, the 45 generous sponsors have pledged a total amount of \$96,855.00. This achievement is about 97% of the US \$100,000 target by May of 2022. Thank you so much for your big heart and contribution to this nascent organization.



2. Endowment fund account balance

As of August 31, 2021, NAPA's Endowment Fund has a total balance of **\$16,716.99**. This amount includes the initial seed money generated in 2018 (\$800.00), the conference-generated residual fund from the NAPA's Second International Scientific Biennial Conference in 2020 (\$5,941.99), and the 2021 installment deposited by the sponsors (\$9,975.00). The NAPA Executive Committee and the Endowment Fund Advisory Board (EFAB), on behalf of all members, truly appreciate the support from all these generous donors.

3. Memorandum of understanding

A Memorandum of Understanding (MOU) has been formally signed by the Endowment Fund Sponsor Prof. Gopi Upreti (on behalf of Gopi Upreti and Samita Upreti), Virginia, USA, and Endowment Fund Advisory Board on July 30, 2021 (on file). The MOU will be signed with all other sponsors and updated to the NAPA community. The Board has already started dispatching draft MOUs to all the endowment fund contributors/sponsors.

4. Investment foresights

Currently, the Endowment Fund Advisory Board is exploring various investment options considering experts' advice and utilizing the expertise within NAPA members. As of now, the Board is considering Vanguard, Fidelity, and TIAA as the potential investment options to begin with.

While continuing to explore all other opportunities, NAPA has already opened one investment account with Vanguard (<https://investor.vanguard.com/corporate-portal/>). To establish the initial investment account, \$5,000 each will be invested soon through this vendor at moderate risk level and high-risk level. The 10-year average risk-to-return rates are, respectively, 10% and 14% at these risk levels, provided other things remain constant. The Board envisions that the endowment fund will start to grow through investment returns, in addition to new sponsors' pledges. A portion of the income generated through the investment will be reinvested to continually grow the principal amount while sustaining NAPA's flagship programs as mutually agreed upon by the sponsor and NAPA authorities.

NAPA Endowment Fund Update and...

For further information and feedback, please contact at napaendowmentfund2021@gmail.com.

| Endowment fund generated in 2018 as seed money | |
|--|---------------|
| Donor | Amount (\$) |
| Dr. Lila B. Karki and Dr. Uma Karki | 200.00 |
| Dr. Khusi Ram Tiwari and Mrs. Ambika Adhikari | 200.00 |
| Dr. Ramesh Khanal | 199.00 |
| Dr. Megha N. Parajulee and Mrs. Sharmila Parajulee | 100.00 |
| Ms. Kemika Bhandari | 51.00 |
| Dr. Prem Bhandari and Mrs. Usha Bhandari | 50.00 |
| Total | 800.00 |

| Endowment fund summary as of August 31, 2021 | |
|--|------------------|
| Description | Amount (\$) |
| Pledged amount of 2021 deposited by sponsors to date (remaining amount to be deposited by December 2021) | 9,975.00 |
| Seed money (2018) | 800.00 |
| Surplus revenue from the second biennial conference (2020) | 5,941.99 |
| Total deposit in the Endowment Fund account | 16,716.99 |

5. Endowment fund deposit summary

As of September 10, 2021, the following NAPA proud sponsors have deposited their first instalment as pledged for 2021. Many thanks for your first installment deposit to the Endowment Fund Account.

| Endowment Fund First Installment Deposit as of September 10, 2021 | |
|---|-----------------|
| Contributors | Amount (\$) |
| Prof. Gopi Upreti and Mrs. Samita Upreti (Prof. Gopi Upreti Research Scholarship Grant) | 2,500.00 |
| Dr. Nanda Joshi and Mrs. Mani Joshi | 2,000.00 |
| Dr. Megha N. Parajulee and Mrs. Sharmila Parajulee | 2,000.00 |
| Dr. Pradeep Wagle and Dr. Monika Ghimire | 1,000.00 |
| Dr. Nityananda Khanal and Mrs. Chandra Khanal | 505.00 |
| Dr. Ramjee Ghimire and Mrs. Sajana Dhakal Ghimire | 500.00 |
| Dr. Prem Bhandari and Mrs. Usha Bhandari (Jit-Shavitra Endowment Fund) | 500.00 |
| Dr. Basu Deb Bhandari and Mrs. Gita Koirala Bhandari | 200.00 |
| Dr. Aditya Khanal | 200.00 |
| Dr. Sushil Thapa and Er. Smriti Thapa | 200.00 |
| Hon Consul General Prem Raja Mahat and Mrs. Kabita Mahat | 200.00 |
| Mr. Kiran Ojha and Mrs. Sharita Ojha | 170.00 |
| Total | 9,975.00 |

6. Appeal to deposit your pledge at EFAB bank account

The Endowment Fund Advisory Board extends its sincere thanks to all the generous sponsors who have already deposited their first-year installment to the Board's bank account. The Board sincerely requests all the remaining sponsors to deposit your first-year installment by **December 31, 2021**. As the Board has already initiated the process of investing the fund, your earliest possible deposit will be much appreciated.

Appreciation to NAPA's Endowment Fund Donors

NAPA community is growing steadily with an increasing number of members from a wide range of agricultural disciplines and geographical regions. Foreseeing its further expansion over time, it is imperative to have a system of regular funding sources to ensure continued NAPA activities. Such financial safety can be achieved via a carefully managed Endowment Fund. Endowed fund principal is not to spend; instead, the earnings from the endowment investments help the programs you choose to implement. In other words, each gift designated for endowment provides NAPA with a permanent financial support/source. Considering this fact, NAPA established Endowment Fund (<https://www.napaamericas.org/endowment.php>) in 2017, and the current EC formed an Endowment Fund Advisory Board that has oversight of this fund. Any NAPA members and interested generous individuals may contribute to this fund. Several NAPA members have already pledged for this endowment fund.

NAPA Executive Committee and the entire NAPA community greatly appreciate the support from our generous donors. TWO new sponsors of this quarter are greatly acknowledged.

Thank you for your valuable contribution to the organization!

| | |
|---|--|
|  <p>NAPA Endowment Fund Bronze Sponsor</p>  <p>Dr. Manoj Karkee, Mrs. Rojee Karkee & Mr. Roshis Karkee</p> <p>Total Pledged Amount: \$1,000 (One Thousand USD over 5 Years) \$200/Year Starting in 2021</p> |  <p>NAPA Endowment Fund Bronze Sponsor</p>  <p>Dr. Rajan Ghimire Dr. Prakriti Bista</p> <p>Total Pledged Amount: \$2,000 (Two Thousand USD over 10 Years) \$200/Year Starting in 2021</p> |
|---|--|

Where to deposit your contribution?

Business Name: Association of Nepalese Agricultural Professionals of Americas

QuickPay® with Zelle® payment: napaendowmentfund2021@gmail.com

Memo: Write 'NAPA endowment fund.'

For details: Please contact NAPA at napaendowmentfund2021@gmail.com or

NAPA treasurer Dr. Santosh Dhakal at santoshdhakal88@gmail.com

Agri-Connection Editorial Board invites and encourages you to send us your articles, intellectual ideas, opinions, thoughts, perspectives, memoirs, and literary creations.

Email: ag.sushilthapa@gmail.com/ napa2072@gmail.com

Appeal for Contribution to NAPA Endowment Fund



ENDOWMENT FUND ADVISORY BOARD

~ESTD. 2020~

Chair

Dr. Lila B. Karki

Director

Dr. Megha N. Parajulee

Director/

Member Secretary

Dr. Prem B. Bhandari

Outreach &

Investment

Coordinators

Dr. Basu D. Bhandari

Dr. Aditya R. Khanal

Dear Sir/Madam:

The Endowment Fund Advisory Board (EFAB) of the Association of Nepalese Agricultural Professionals of Americas (NAPA) sincerely requests you to consider a donation to its **Endowment Fund**. Your donations to the endowment fund would help NAPA achieve its overarching goal, “*Global Food Security through Agricultural Transformation*.” NAPA is a non-profit, non-governmental, non-religious, and non-political professional organization dedicated to serving humanity through scientific research, teaching, outreach, and charitable initiatives in agricultural and allied disciplines. Since its inception in 2016, NAPA has implemented outstanding programs such as international scientific conferences, scholarships, research mini-grants, webinars, seminars and workshops, peer-reviewed journal, Global Journal of Agriculture and Allied Sciences (GJAAS), a seminal book on food security, research and policy briefs, and Agri-Connection – an online quarterly newsletter.

To facilitate and expand its endowment fund, originally initiated in 2017, envisioning the economic and programmatic sustainability of this emerging organization, the NAPA Executive Committee has established an Endowment Fund Advisory Board in January 2021. The EFAB envisages utilizing the endowment revenue to sponsor NAPA's flagship programs, prioritizing donor-specified activities while allowing the principal to grow through its productive investment strategies.

Within a first couple of months of its establishment, Endowment Fund Advisory Board has already received a pledge commitment of US \$96,855.00 as of September 30, 2021.

You can contribute to this noble cause by establishing the fund in your name or your beloved ones'. As a contributor, you can also express your activity of interest to NAPA, consistent with NAPA's mission and vision. It is an incredible opportunity for you to contribute to this cause through an upfront donation or any amount on a monthly or annual basis for any number of years, based on your interest and willingness. **Donations to NAPA endowment funds are tax-deductible.** Our Endowment Fund Donation Recognitions/Tiers are:

| | |
|--|--------------------------|
| Platinum Sponsor ≥\$10,000 | Diamond Sponsor ≥\$7,000 |
| Gold Sponsor ≥\$5,000 | Silver Sponsor ≥\$3,000 |
| Bronze Sponsor ≥\$1,000 | Green Sponsor ≥\$500 |
| Valued Sponsor or Supporter <\$500 (allocated to common/pool fund) | |

The endowment fund's beauty is that a sponsor may customize the donation as a single or multiple installment (s) over the years. The tiered recognition level may scale up anytime your support reaches the designated tier, as mentioned above. The EFAB assures you that every donation to this fund will be maintained, managed, and utilized transparently. Thank you in advance for your solidarity. We look forward to receiving your generous pledge for the endowment fund. We highly appreciate your continued support to NAPA. For more information, please visit: <https://www.napaamericas.org/endowment.php>.

Thank you everyone!

Endowment Fund Advisory Board

Photographs in Action



Photograph I:

Cabbage butterfly larva (harmful) and ladybird beetle adult (beneficial) on the same plant.

Source: Bipin Khatri



Photograph II:

Walnut (Hade Okhar in Nepali) ready to harvest in Banglachuli-5, Dang, Nepal (1513 MASL).

Source: Bipin Khatri



Photograph III:

Grain sorghum (Junelo in Nepali) is used for food, fodder, and the production of alcoholic beverages.

Source: Sushil Thapa



Photograph IV:

Cactus is known for its drought tolerant nature and erosion control potential in dry areas.

Source: Sushil Thapa

For past issues of Agri-Connection, please visit the link below:
<http://napaamericas.org/agri-connection.php>

Featured NAPA Member of the Quarter (July–September 2021)



Congratulations!



Dr. Bharat Pokharel



NAPA

MEMBER OF THE QUARTER

NAPA is delighted to recognize **Dr. Pokharel**, Associate Professor at Tennessee State University, as a Featured Member of the Quarter for his valuable contribution to the organization.

Dr. Bharat Pokharel, Associate Professor and Graduate Coordinator at the College of Agriculture, Tennessee State University, Nashville, Tennessee, is an active life member of NAPA. In the past several years, he volunteered numerous NAPA's activities. Notably, he served as a chair for the student's writing contest held during NAPA's first and second Biennial Conferences in 2018 and 2020. He took leadership to develop comprehensive essay evaluation rubrics and successfully conducted a rigorous review process to rank the best essays submitted by graduate and undergraduate students around the globe. The conference organizing committee recognized him with an award and plaque for his outstanding contribution as a chair of this important but tedious and challenging task.

Dr. Pokharel is not only a faculty member who values students and their contribution to science and society, but he is also a technologically savvy individual. Based on his skills and interest, NAPA requested him to develop a framework for an open-source journal platform for its journal, Global Journal of Agricultural and Allied Sciences (GJAAS). After numerous brainstorming sessions, he recommended Open Journal Systems (OJS), which was developed by Public Knowledge Project (PKP). To host this journal management system, Dr. Pokharel purchased the journal's dedicated website, i.e., its domain www.gjaas.org and hosting site where OJS can be successfully deployed. After several late nights and weekends, he finally

brought the webpage live and the journal management system is running smoothly.

Dr. Pokharel is neither an IT professional nor a computer science graduate, but his interest, determination, diligence, and persistence successfully made it happen. It is an inspirational story for many of us; if you are willing to do it, you can do it. The story did not end here. To make it a complete project as a journal's managing editor, he needed to design journal's outlook, format, and DOI registration process. To date, NAPA has successfully published 3rd volume of the journal through a rigorous peer-review process, and all these open-source publications are published through www.gjaas.org. He is currently serving as the Managing Editor and a subject editor for GJAAS.

Dr. Pokharel earned B.S. (Forestry) from the Australian National University in Canberra, Australia, and Ph.D. (Forest Biometrics) from the Michigan Technological University in Houghton, Michigan. In the past, he worked for over five years for a non-profit organization, the World Wildlife Fund (WWF), in different capacities as a resource professional in Nepal. He joined Tennessee State University in 2014 as an assistant professor of Applied Statistics. He has published over two dozen peer-reviewed journal articles. Dr. Pokharel was the recipient of the "Tree of Life" award by the Canadian Institute of Forestry in 2013.

Congratulations, Dr. Pokharel. We appreciate your contribution to the organization!

Panel Discussion on Graduate School Life Management

Organized by NAPA Student Coordination Committee (SCC)

Graduate school life is daunting with imminent challenges, including time management, work-life balances, and the accompanying stress that take a toll on student's productivity and mental health. Students often struggle with the perceived need to constantly study while expected to teach/research, undergo professional development, and have job search obligations. Advance awareness helps students to make acquaintances with strategies to overcome the challenges. For this reason, the Student Coordination Committee (SCC) of NAPA hosted a panel discussion on graduate school life management on July 31, 2021. The event was moderated by Ms. Shubhechhha Sharma, a doctoral candidate at Michigan State University.

Dr. Shital Paudel, Assistant Professor at Utah State University, highlighted the importance of work-life balance during graduate life. He emphasized that students need time for family to function at best. Even though this is an obvious point, yet students suffer from lop-sided work schedules. He suggested that students need to remember to make time outside the graduate school for long-term success. The best strategy is to appreciate common goals, prioritize works, and communicate effectively with the advisor. Dr. Paudel also suggested students be familiar with the kind of supports offered by the host institution and make use of them when needed.

Ms. Shubhechhha Sharma shared her reliance on external and out-of-department funding to support herself as a graduate student. Ms. Sharma suggested never think twice about approaching professors both in and out of the department if they could ensure financial support. Sudhir Yadav, a doctoral candidate at the University of Georgia, shared his opinions about switching laboratories if learning a new set of technology and knowledge is deemed necessary to lead to a desirable job in the future. Sudhikshya Paudel, a doctoral student at North Carolina State University, shared another challenge for a graduate student is dealing with motivation throughout the long project like a doctoral degree. Feeling mediocrity, bored, and dissatisfied with one's project is quite common. She suggested being calm and taking breaks can be helpful, which allows becoming invigorated and thinking from a new perspective.

Dr. Santosh Dhakal, the SCC advisor, discussed other common issues, including imposter syndrome and mental health problems, and highlighted the need for timely communication with advisors, colleagues, and graduate student wellness program staff to solve these issues. Dr. Dhakal concluded the session by acknowledging the panelists and the participants.

PANEL DISCUSSION ON GRADUATE SCHOOL LIFE MANAGEMENT

Graduate students face multiple learning and development challenges that takes a toll in their productivity and mental health. Become the part of the discussion in identifying strategies and ways to navigate graduate school.



SATURDAY, 31ST JULY 2021
9:00 PM EST

SPEAKER 1



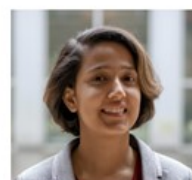
Dr. Shital Paudel
Utah State University

SPEAKER 2



Sudhir Yadav
The University of Georgia

SPEAKER 3



Sudhikshya Paudel
North Carolina State University

MODERATOR



Shubhechhha Sharma
Michigan State University

Student Coordination Committee (SCC)
Association of Nepalese Agricultural Professionals of Americas (NAPA)

Only open to NAPA members

Updates from the Research and Capacity Building Committee (RCBC)

Since the award decision and administration of 16 Research Mini-Grant (RMG) projects for 2020-2021, the RCBC Committee has been convening series of virtual orientations to the award recipients and discussion sessions with the research teams. The research teams include the RMG awardee undergraduate students in Nepal, and their local academic advisors and NAPA advisors. Those sessions spanning from one to two hours have also been actively participated by NAPA executives. The RCBC sourced reputed experts to facilitate the orientation sessions.

A project status review meeting was held on July 30th to have an update on the project implementation under the prevailing COVID-19 pandemic situation and restrictions in Nepal. The meeting concluded that despite the interruptions and delays in project implementation due to COVID-19 pandemic, majority of the projects were in progress towards attaining intended outputs.

On July 2nd, the RCBC organized an orientation on Survey and Questionnaire Design. Dr. Ramjee Ghimire, NAPA General Secretary, who is also an NAPA advisor to an RMG recipient, served as a re-source person facilitating an orientation. In his talk, Dr. Ghimire shed light on aspects of survey research methodology including: nature of survey research and its purpose; steps and detail considerations in designing survey questions; types of survey questions in relation to purpose and context of research, questionnaire for-mats & layouts, and measures for improving response rates. Dr. Ghimire covered overall best practices, dos and don'ts of survey questions in his presentation.

The third event in the series in this quarter was an orientation on data analysis held on August 20th. The resource person for this session was Dr. Chakra Budhathoki, a seasoned biometrician and Associate Professor at Johns Hopkins University. In his talk entitled "Some Good Practices in Statistical Analysis", Dr. Budhathoki introduced the concepts covering the elements of research methods, categories of research designs, principles and types of experimental design, precision and accuracy, sample size determination, planning data analysis, aspects of data management, data analysis methods and considerations in relation to nature of variables, exploratory data analysis, parametric and non-parametric methods, possible reasons for non-significant results, and interpretation of results and putting things together.

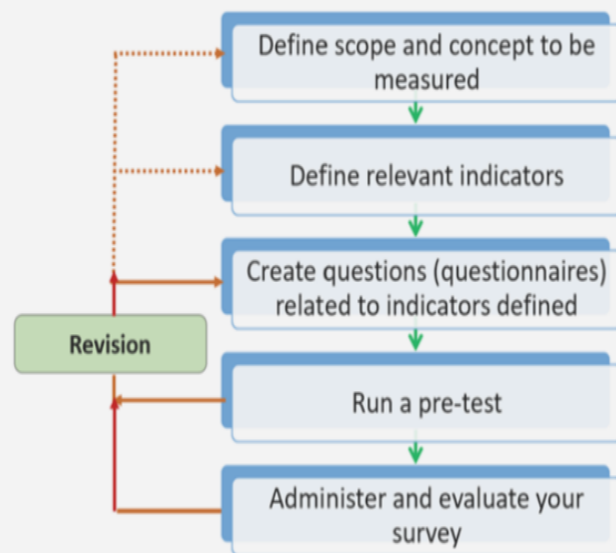
Major Considerations on Survey and Questionnaire Design

Dr. Ramjee Ghimire

Collecting reliable, valid, and trustworthy data in re-search is paramount to minimize biases and increase the generalizability of research findings. A survey is one of the systems for collecting such data from or about people to describe, compare, or explain their knowledge, attitudes, and behavior (Fink, 2003). The survey allows the researcher to collect qualitative and quantitative data on many different types of research questions. The survey could be used in exploratory as well as descriptive research to collect information about people, events, or situations.

Survey designing is a challenging task, and survey designers (researchers) should be familiar with the science (arts and crafts) of survey designing. It is grounded on social exchange theory which posits that give attention to all aspects of questionnaires and survey implementation procedures to be experienced by survey recipients. The likelihood of obtaining questionnaire answers is greatest if the survey designer simultaneously focused on reducing costs, increasing benefits, and engendering trust among the sample subjects that the expected benefits of responding would outweigh the costs of responding.

A flow diagram of five milestones of questionnaire designing:



Adapted from Trost, 2020:
<https://www.youtube.com/watch?v=AlbV1auGtIU>

Survey blocks, the definition of a survey question, setting goals, designing questions, choosing right question types, rating scales for attitude questions, deciding question sequence, creating appealing design and look of the survey, making the content easy to read, consideration of contexts, translation and back translation, pre-testing the survey, and finally tips to improve response rates are important considerations on survey and questionnaire design.

Updates from the Research and Capacity...

The presenters and audiences made all the sessions participatory and interactive with discussions during and after the presentations. The RCBC met on September 26th and decided to organize mid-term review meeting for RMG projects on October 8 2021. The meeting also discussed the aspects of resource generation for future collaborative research and rapport building with various

organizations in Nepal to explore the possibility of collaboration.

Prepared by:

Dr. Nityananda Khanal, Chair

Resource and Capacity Building Committee

Appeal to Support NAPA Initiatives

- **Research Mini-Grant:** <https://www.napaamericas.org/donate.php>
- **Scholarship Fund:** <http://napaamericas.org/napa-scholarships-sponsors.php>
- **Endowment Fund:** <http://napaamericas.org/endowment-fund-announcement.php>

Public Speaking Workshop and Seminar



UNCON (USA-Nepal Community Outreach Network) in collaboration with Agriculture and Forestry University (AFU)-Nepal and Association of Nepalese Agricultural Professionals of Americas (NAPA) successfully organized the 3-Day Public Speaking Workshop and Seminar from July 31 to August 02, 2021. More than 100 attendees, including college students, researchers, and scientists benefited from the program and majority of them were from different institutions in Nepal.

NAPA President Dr. Megha N. Parajulee, executive member Dr. Sushil Thapa, and life member Dr. Rajan Ghimire attended the program. Dr. Parajulee served as a keynote speaker along with Dr. Punya P. Regmi (Vice Chancellor, AFU), and Mr. Bilas Upadhyay (President, UNCON). The workshop covered several public speaking techniques such as, organizing speech, controlling fear, and using vocal variety and body language. On the second day, Dr. Thapa delivered a demo presentation (a professional research presentation) and panelists, including Dr. Parajulee and Dr. Ghimire discussed on what to do and what to avoid in a research presentation. As a major highlight of the third day, UNCON Vice President and the Distinguished Toastmaster (DTM), Mr. Batuk Bista discussed about the nine secrets of public speaking.

NAPA Committees

NAPA Executive Committee (2020-2022)

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Dr. Megha N. Parajulee

Vice President

Dr. Pradeep Wagle

General Secretary

Dr. Ramjee Ghimire

Joint Secretary

Dr. Dev Paudel

Treasurer

Dr. Santosh Dhakal

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Dr. Shyam L. Kandel

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Dr. Uma Karki

Advisory Council

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Dr. Drona Rasali

Prof. Gopi Upreti

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Dr. Nanda P. Joshi

Dr. Narayan Khadka

(Legal Advisor)

Dr. Peetambar Dahal

Dr. Prakash Malla

Nepal Liaison

Mr. Kiran Ojha

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Dr. Pradeep Wagle

Co-Chair

Dr. Santosh Dhakal

Student Coordination Committee (SCC)

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Ms. Shubhechchha Sharma

Co-Chair

Mr. Bikash Ghimire

Members

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Mr. Nabin Sedhain

Mr. Pawan Devkota

Mr. Rishi Khatri

Mr. Sudhir Yadav

Ms. Sudikshya Paudel

Mr. Sujan Bhattarai

Mr. Yogendra Raj Upadhyaya

Advisor

Dr. Santosh Dhakal

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Editors

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Dr. Shanta Karki

IT Committee

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Dr. Dev Paudel

Career and Outreach Committee (COC)

Chair

Dr. Pramod Pokhrel

Members

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Mr. Bishwoyog Bhattarai

Mr. Deependra Dhakal

Mr. Dinesh Phuyal

Ms. Isha Poudel

Global Journal of Agricultural & Allied Sciences (GJAAS)

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Dr. Megha N. Parajulee

Managing Editors

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Dr. Pradeep Wagle

Editors

Dr. Chakra Budhathoki

Dr. Jagadish Timsina

Dr. Kalidas Subedi

Dr. Krishna P. Paudel

Dr. Prem B. Bhandari

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Members

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Mr. Maha P. Gelal

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NAPA Membership Update

| Member Category | Members |
|-------------------------------|---------|
| Founding Life | 5 |
| Regular Life + Senior life | 100 |
| General/Regular | 25 |
| Student | 144 |
| Associate Life, International | 5 |
| Associate Life, Nepal | 61 |
| Associate, International | 2 |
| Joint Life | 4 |
| Family/Joint | 14 |

Welcome New NAPA Members on Board!

Student Member

Dr. Anmol Kandel, University of Maryland
 Mr. Anup Dhakal, University of Illinois
 Ms. Apekshya Parajuli, University of Florida
 Ms. Kantilata Thapa, University of Nebraska
 Mr. Khim Bahadur Ale, Tuskegee University

Mr. Rabin KC, Michigan State University
 Mr. Sagar Adhikari, North Dakota State University
 Mr. Sagar Dahal, University of Nebraska
 Ms. Santoshi Chaudhary, Tuskegee University
 Mr. Ujjwal Sigdel, University of Arkansas
 Mr. Ujjwol Subedi, University of Maryland

Associate Life Member

Dr. Luni Piya, Japan
 Dr. Niraj Prakash Joshi, Japan
 Mr. Padma Nath Atreya, Nepal

General/Regular Member

Dr. Ramesh Dhakal, Virginia

Stay Connected with NAPA Community



<https://www.facebook.com/napa2072>



<http://napaamericas.org>

<https://www.facebook.com/NepaleseAgriculturistAmericas>

Appeal to Join/Renew NAPA Membership

We would like to request potential members to join NAPA - **a common professional platform for all of us**. Meanwhile, we request all members who are not currently in good standing to renew their memberships. Members' contributions thus far to bring NAPA to the current level is greatly appreciated. We request our dedicated members and well-wishers to promote NAPA to the next level by recruiting eligible friends/colleagues/students in your network. New NAPA members must write the recruiter's name in the "referred by" row in the membership form. **The highest three recruiters will be recognized at our Biennial Scientific Conference.**

A few reasons to join/renew NAPA membership:

NAPA is a member-driven voluntary organization. Members can benefit from the association to advance their career growth, develop organizational practices and leadership skills at all stages. Some of the membership benefits include:

- Peer-to-peer networking and research collaboration opportunities
- Professional development and advancement
- Serving on various committees
- Opportunity to publish scientific works in NAPA's various outlets (Journal, Book, Research/Policy Brief, and Agri-Connection)
- Opportunity to sponsor scholarships and research mini-grants in preferred agricultural institutions and disciplines in Nepal through NAPA
- Eligibility for organizational awards, scholarships, and endowment funds
- Opportunity to share scientific works, experiences, and expertise via association's Talk Sessions (Webinars) and Online Teaching/Learning Programs
- Joining global expert repository to contribute to Nepalese Agriculture and beyond
- Keeping up-to-date on association's programs and activities
- Volunteering and charitable opportunities
- Discounted rates for registration and hotel reservation during scientific conferences organized by the association

The life membership fees have been adjusted from \$500.00 to \$200.00 (\$300.00 for eligible couples) to encourage eligible members to become life member of the organization. Please check for more details on Joining NAPA at <http://napaamericas.org/join-napa.php> and membership type and fees at <http://napaamericas.org/membership.php>. **We look forward to welcoming you for a great cause. Please let us know** if you have any questions and willingness to volunteer in various committees.

Thank you.



On behalf of NAPA Executive Committee,
Dr. Pradeep Wagle
Vice President

Chair, Membership Drive Committee

Email: napa2072@gmail.com

BECOME A
MEMBER
JOIN TODAY!

Renew now

Please join or renew your membership. Become a life member if possible!

KidsZone

Healthy Eating for Children and Teens

Swornim Khatiwada
 Grade 8, Brisbane Christian College
 Brisbane, Queensland, Australia



Teens or teenagers and those turning adolescents are generally picky eaters and might be overeating some food or not eating enough, which can be bad for their health and wellbeing. Parents of teenagers are worried about their kids' eating habit or their choice of food that might not be nutritionally balanced to provide all the nutrients required for their growth and development. Due to easy availability, taste, convenience, and relatively low price for fast foods worldwide, children are increasingly eating those ready-to-go processed foods. Teenagers are the biggest consumers of fast food and sweetened soft drinks, but the likelihood of this is more if they live in big cities and near fast-food restaurants. Eating fast foods is common before or after school, or when socializing with their peers.

Teenage and body growth/development

Teenagers go through a lot of physical, psychological, and hormonal changes during their puberty and need extra nutrition. To meet the energy and nutrition needs of their ages, teens need to plan adequately to meet those needs through a healthy meal plan. The larche, pubarche and menarche, and a growth spurt in females and pubarche, genital changes, and growth spurt are some of the common physical changes in teens associated with hormonal changes. These physical changes in size demand more nutrients in the body. Every teen should understand these changes and the need for extra nutrition for their body and should plan their meal accordingly.

Nutritious food

Our food consists of five different nutrients, namely carbohydrates, proteins, fats, vitamins, and minerals. Rice and bread mainly give carbohydrates to our body which is a major source of energy. For protein, we have animal and plant sources. Animal source proteins are meat, milk, egg, fish, and seafood, whereas plant source proteins include beans and lentils. Beans and lentils also provide fibres, vitamins, and minerals. There are many different varieties of beans and lentils. We can get fat from oils, butter, and cheese. Avocado and olives are good sources of plant-based good fats. There are two types of fats called saturated and unsaturated; our body needs more unsaturated fats to minimize the cholesterol level in the blood. We can get minerals and vitamins from green leafy vegetables and many different fruits. Ripe yellow fruits are a good source of vitamin A while meat, fish, and eggs give vitamin B3.

Healthy eating

Healthy eating refers to eating a wide variety of food from all different food groups that provide the required nutrition and energy to the body. Most teens are happy to eat salty, sugary, and fatty foods while taking less fruit and vegetables. Processed foods are energy-dense foods rich in one of the nutrients but do not have enough of other nutrients. But our body needs balanced nutrition. So, healthy eating is a habit that can be developed by careful parenting from the early years of their life. There are numerous cases of obesity and overweight in children and teens, which might continue to their adulthood. Obesity predisposes people to several health problems including heart attack and blood pressure. Normally there are five food groups, namely vegetables, fruit, grain foods, meats, and milk products. Teens have different requirement for girls and boys based on their body need. In general, 5 serves of vegetable, 2 serves of fruit, 5 serves of grains, 2.5 serves of meat/beans, and 3 serves of milk, or reduced-fat is recommended per day. One serve is generally 75 g.

Table 1. A general meal plan for children, where a little increase can be recommended for teens.
 (Source: www.eatforhealth.gov.au)

| | |
|------------------------|--|
| Breakfast | 1 wheat biscuit, ½ cup reduced fat milk, 100 g yoghurt |
| Morning break | 1 medium banana, 3 crispbreads, 1T of peanut butter spread |
| Lunch | 2 slices of wholemeal bread, 1 boiled egg, 20g/1 slice reduced fat cheese, 1 cup mixed salad |
| Afternoon break | 1 crumpet with a light spread of margarine, 1 cup/250ml reduced fat milk |
| Dinner | 65 g cooked lamb kebab, 1 small boiled potato, ½ cup cooked carrot, ½ cup cooked beans |
| Evening snack | 1 cup mixed fruit plus small tub/100g yoghurt |

Note: Drink plenty of water throughout the day

In summary, healthy eating is very important for children and teens like other age groups and needs careful planning to meet their nutrition needs. Parents, teachers, and peers can encourage healthy eating for them.

KidsZone

Seed to Plate

Eva Shrestha

Grade 3, Desert View School

Hermiston, Oregon



When spring comes, I feel happy! Birds start singing, and trees start getting new baby leaves! Now, it's time for gardening. We love to have our vegetables from the garden. My dad loves cucumber, and mom loves chilly, but my favorites are eggplants and okras. To start the garden, we make the seedling out of seeds in the greenhouse. First, we put soil in little pots. Then, we put the seed in the soil of the pot.

After that, we water them. I regularly check on them every day. In few days, we see sprouts! Day by day, it becomes bigger, taller, and gets more leaves. When it is ready, we'll put the plants in the garden from the greenhouse. Then, plants get taller, bigger, and have more leaves. After that, it starts flowering. The flower starts to get vegetables. In few days, it begins to ripe. My dad checks if it is ready for harvest or not. Then my mom picks it, and she makes a delicious dinner of it. I love the garden because of the fresh Vegetables! So every summer, me and my family do gardening.

Please Encourage Your Kids to Participate

Dear NAPA members and AC readers,

We are very excited to include a new section, **KidsZone** in the Agri-Connection Newsletter from this issue onwards.

Please inform and encourage your kids to participate. Creations such as arts, drawings, and any forms of writings (short essay, poem, story, memories, etc.) related to agriculture and allied sciences are accepted. **KidsZone** also includes features on kids, animals, plants, life at school, and issues of particular interest to kids.

Please include the following:

Name:

Grade:

State/District:

KIDS TODAY, SCIENTISTS TOMORROW!

Email: agriconnection2072@gmail.com

cc: ag.sushilhapa@gmail.com

For past issues of Agri-Connection, please visit the link below:

<http://napaamericas.org/agri-connection.php>

Tunnel Boring Machine (TBM) Technology Opens a New Vista for Nepal's Agricultural Development and Prosperity

Prof. Gopi Upreti
Email: goupreti@gmail.com



Melamchi! Melamchi!

Oh! My Melamchi!

You came to quench my thirsty neck!

I did not believe and thought, you were a fake!

I heartily embrace your arrival now! despite so late!

The long-awaited Melamchi Drinking Water Project that was mired in uncertainty and controversy time and again eventually materialized after nearly three decades. It was first conceived by the then prime minister, late Krishna Prasad Bhattarai, popularly known as “Kisunji” and has been completed under the leadership of immediate past prime minister, Khadga Prasad Oli.

The most spectacular feature of the Project is its 26-kilometer-long tunnel to transport water from the Melamchi River in Sindhupalchok to drinking water reservoirs and the Bagmati River in Kathmandu. The tunnel is constructed using Tunnel Boring Machine (TBM) Technology and has been reported as the longest tunnel in South Asia and the second-longest tunnel in Asia. With the successful completion of this project, Nepal has entered into a new era of TBM technology opening new vistas and possibilities of road infrastructures and multipurpose development projects that can integrate high dam hydro-energy, irrigation, and drinking water.

TBM technology in agricultural development

The TBM technology has made it possible to transport water from the river basin to water-scarce areas for irrigation, human consumption, and industrial and municipal uses. This technology is particularly important for Nepal, where multipurpose high dam reservoirs projects can be designed and built in the valleys and mountains. The TBM technology can help generate hydro-energy and transport water across mountains, Terai, and inner Terai to irrigate millions of hectares of arable lands and boost agricultural productivity. The completion of the Melamchi Drinking Water Project has raised high optimism for the use of TBM technology in the generation of hydro-energy, development of road infrastructures, irrigation infrastructures, and the transportation of water across river basins offering tremendous potential for the development of Nepal.

In addition to Melamchi, other infrastructure projects with TBM technology are also moving towards completion. One of them is the Bheri Babai Diversion Multipurpose Project (BBDMP), which diverts water from the Bheri River in Surkhet district through a 12.2 km

long tunnel across the Siwalik-mountain chain. The project plans to irrigate 51,000 hectares of land in Banke and Bardiya districts and generate 46 megawatts of hydro-energy. Almost 80% of this project is completed and after completion farmers in Banke and Bardiya districts will have year-round irrigation in the next two years. Likewise, Sunkoshi Marin Diversion Multipurpose Project (SMDMP) has already been started which also uses the TBM technology. The SMDMP consists of a dam of 12 m high along the Sunkoshi River, a diversion tunnel of 13.3 km long to divert water from the Sunkoshi River to the Marin Khola. This project envisions providing year-round irrigation to 122,000 ha of land in Rautahat, Dhanusha, Mahottari, Sarlahi, and Bara districts and generating 30 MW of hydro-energy (myRepublica, 2020). These projects raise and inspire our optimism for the agricultural development of Nepal.

The government of Nepal (GON) recently intensified the much-awaited Kaligandaki Tinau Diversion Multipurpose Project (KTDMP). The KTDMP project will divert 90.6 cubic feet of Kaligandaki waters per second from Ramdighat in Syanja district to the Tinau River in Rupandehi district through a 9- m wide and 30 km long tunnel (myRepublica, 2021). The multipurpose project envisages irrigating 107,000 hectares of land (54,000 in Kapilvastu and 53,000 in Rupandehi) and producing 126 MW of electricity. A diversion dam will be constructed at Pipaldanda in Rambha Rural Municipality of Palpa district. The estimated cost of the project has been reported to be NRs. 138 billion (Gautam, 2021). These ambitious projects indicate that GON is moving in the right direction from a water-energy-food nexus perspective. With the use of scientific innovations and proven technology like TBM, Nepal can leap forward in its development endeavor and catch up with its neighbors relatively quickly (Tunnel Talk, 2019). All Nepal needs is a visionary leader with firm determination and commitment to the development path with good governance despite political hinderance and obstacles.

Current state of Nepal's agriculture

Nepal's economy depends on around 29% of the GDP from the agricultural sector, which also employs more than 60% of its population. Nepal used to be an exporter of grains four decades ago, but now it has been importing grains and agricultural produces worth more than 800 million USD annually from neighboring countries (Bhattarai et al., 2020). The yield trends of different crops and vegetables in Nepal show that agricultural

Tunnel Boring Machine (TBM) Technology...

productivity has not been increased over the years due to several factors, the most important of which is lack of year-round irrigation.

There exists a wide productivity gap for major agricultural products, indicating huge potential for improvement. Data reveal an urgent need to accelerate the production of paddy, milk, fish, and timber with increased inputs and innovative management practices (ADS, 2014). Nepal's agriculture is predominantly monsoon dependent (approx. 75% of arable land), which can only partially irrigate the limited arable lands annually (MOAD, 2019) and the biggest bottleneck for increasing productivity is the lack of irrigation infrastructures. Until we find an alternative for monsoon-dependent agriculture and food production systems in Nepal with the development of adequate irrigation infrastructures, the future of Nepal's agriculture, food production, and food security will always remain an enigma. Furthermore, Nepal's development depends on agricultural development due to its multiplier effects on other sectors, including agro-based industries, cottage industries, tourism, and energy development. The development of infrastructures for year-round irrigation becomes the central axis for agricultural development in Nepal.

If all potentially irrigable land (1.48 million ha in Terai and 0.8 million ha in hills and mountains) can be brought under year-round irrigation and improved production technologies are used, total food production in the country could be increased by 2.5 to 3 times with increased cropping intensity of 2.5. This will not only meet the food security of Nepal's 29 million people but also contribute 2-3 billion US dollars to the national economy annually (Shrestha et al., 2018). Terai agriculture alone can achieve food security and food self-sufficiency and export of the surplus food grains to neighboring countries generates substantial amount of revenue.

Green Revolution and the prosperity of the country

Nepal's major river systems and their tributaries originate from the snow-capped mountains and the Himalayas. Nepal's failure to recognize the value of glacier Himalayan ecosystems will have far-reaching repercussions in managing the river systems, watersheds, their catchments, and vital natural resources, seriously threatening the sustained flow of ecosystem services critical for water, food, and energy security in the country. According to Ministry of Energy, Water Resources and Irrigation (MOEWRI, 2020), more than 225 billion cubic meters of surface water is available every year in Nepal. This huge amount of water can be used to generate much-needed hydro-energy and irrigation infrastructures and increase agricultural productivity. However, due to the non-uniform temporal and spatial distribution of the water resource, less than 10% of available water

has so far been utilized in the country for irrigating agricultural lands (MOEWRI, 2020).

Generation of hydro-energy in the river basin and development of irrigation infrastructures to leverage the abundant available water resources provides the foundation for agriculture revolution that accomplishes food self-sufficiency and provides the basis for achieving the prosperity of Nepal. Agriculture's contribution to national revenue (GDP) can be increased by three to four folds making agriculture a game-changer in the country's development. The design of multipurpose development projects integrating hydro-energy and irrigation infrastructures with the application of TBM technology can revolutionize the agricultural development of Nepal. Nepal cannot achieve prosperity without an environmentally sustainable Green Revolution which is possible only through water-energy-food nexus development strategy that can integrate water resources, hydro-energy, irrigation infrastructures, and drinking water.

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Nepal's Position on Geographical Information Tag in Basmati Rice

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Background

Many agricultural products are being protected by geographical indication (GI) under the intellectual property rights regime in the world. Although there are many geo-associated quality products in Nepal (Joshi et al., 2017), they are not protected due to a lack of a legal system. Basmati rice is one of such products and is also known as the king of cereals. It is highly valued in terms of nutrient yield and health index yield. The word 'Basmati' is an adjective describing things having aroma or fragrance. In Nepal, it is grown in Terai and Mid-hill agro-ecozones. It is highly reputed to consume Basmati rice on special occasions. It is Nepalese culture to offer Basmati rice to special guest, and it was the most preferred item in the royal family.

In July 2018, India submitted an application for GI tag to Basmati rice to the European Union (EU). The EU published application details in the official journal dated 11 September, 2020 (ED, 2020). Based on this publication, Nepal submitted an opposition letter along with proofs and evidence of origin, diversity, cultivation, and use values of Basmati rice in Nepal on 9 December 2020. Nepal stands for respecting the traditions of the Nepalese community on using, growing, and trading Basmati rice, either canceling the India's claim or providing the same right to Nepali Basmati rice. This article describes the conversation between the opposition party (i.e., Nepal) and the applicant (i.e., India), regarding the GI tag to Basmati rice provided by the EU along with GI status on Basmati rice in Nepal.

Geographical indication and Basmati rice protection in Nepal

Geographical indication is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. Several agricultural products are being provided GI tag in the world to guarantee the marketing of site-specific products. The GI helps to assure quality for consumers and provides incentives to producers. Nepal does not have any products with formal GI tags but there are many products, including Basmati, marketed informally as GI and getting a higher price for assured better quality in different parts of Nepal. In India, there are about 361 GI products. In 2010, the Indian government registered Basmati as their GI product.

In Nepal, there are no specific laws regarding GI regis-

tration. However, National Intellectual Property Policy (NIPP)-2017, has the geographical indication policy provision in Nepal. Based on this policy, the act for GI is being drafted and in the process of approval. The existing act, Patent, Design and Trademark Act, 1965 (PDTA), protects the industrial property as trademark and collective trademark, which can be used for GI protection. Although the PDTA (1965) does not have specific provisions for GI and its protection, this does not stop Nepal from providing such protection as Nepal is a member of WIPO since 1997 and WTO/TRIPS since 2004.



Picture 1. Basmati rice demonstration site in Lamjung district, Nepal. (Source: B.K. Joshi)

Under the trademark, 15 different Basmati products are listed, and some of them are granted protection. In the current situation, the collective trademark is only the option for the GI tag to Basmati rice, but no one has claimed it as a collective trademark. Basmati rice has been registered under trademark in Nepal, for which the Department of Industry (DoI) is the competent authority. However, Indian Agricultural and Processed Food Products Export Development Authority (APEDA) has lodged the claims in the DoI that Basmati is registered as a geographical indication right in India, preventing Nepali companies from owning the Basmati as a trademark.

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National Seed Board has registered four basmati rice landraces as per the Seed Act 1988. Basmati rice is the tradition of many Nepali communities since ancient times. Therefore, the right of the Nepalese farming communities to use Basmati rice should not be prohibited. Nepal thus submitted an opposition letter to the EU on 9 December 2020.

Evidence and challenges to prove Basmati rice as Nepali product

Nepal has many different evidences and proofs on origin, cultivation, diversity, uses, and tradition of Basmati rice. This evidence is linguistic and ancient literature; folklore; traditions, specialty, and reputation; sociocultural, economic, and market value; databases; center of diversity; historical and research documents; basmati rice diversity and production areas; agro-morphological and nutritional based results; and isozymes and DNA based findings. There are about 133 aromatic rice landraces grown and maintained in 60 districts by farmers from many years in Nepal. Nepal Agricultural Research Council (NARC) has collected and conserved more than 80 Basmati-type rice accessions from different areas of Nepal. International genebanks (<https://www.genesys-pgr.org/>) have conserved more than 68 Basmati rice accessions. Basmati diversity is being conserved and used by several native community seed banks in the country (Joshi et al., 2021).

Nepali farmers are growing, maintaining, marketing, and consuming different types of Basmati rice since ancient times. The global community agreed that the lower altitude of Nepal is one of the centers of origin of Basmati rice (Khush, 2000). Nepali communities have practical experiences of Basmati rice landraces having geo-linked traits. Around 60 rice factories exist in Nepal, and most of them sell Basmati by different brand names. Some of these Basmati brands are considered better than the brands in other countries in terms of grain quality.

Nepal does not have a legal system of protecting products through GI, and therefore, Basmati rice has not been tagged by GI. In order to get a GI tag to Nepali products from other countries, the product should first be protected in Nepal. Basmati is a collective term that includes all aromatic rice landraces and varieties. Different types of Basmati landraces and varieties may need further evaluation for specific characteristics and get a GI tag. Alternatively, all types of Basmati rice landraces can get GI if all types meet the standards. Many landraces are already extinct, and some are at the risk of being lost and produce low yields. Introduced basmati rice is generally not eligible to get GI tag, and therefore, genetic enhancement of native Basmati rice landraces is needed. External factors such as chemical fertilizers, and temperature, affect the expression of aromatic genes, and therefore, proper agronomical packages should be developed to conserve local landraces. Moreover, particular districts or sites should be identified for providing GI rights.

The current debate on Basmati rice in the EU

GI establishes intellectual property rights for specific products whose qualities are specifically linked to the area of production. The EU GI system protects the names of products that originate from specific regions, attribute qualities, and reputation linked to the production territory. The GI in the EU comprises Protected Designation of Origin for food and wine (PDO), Protected Geographical Indication for food and wine (PGI), Traditional Specialty Guaranteed (TSG), and Geographical Indication for spirit drinks and aromatized wines (GI).

The authorities of a Member State or a third country, or a natural or legal person having a legitimate interest and established in a third country may lodge a notice of opposition with the Commission within three months from the date of publication in the Official Journal of the European Union. A notice of opposition should be fol-



Picture 2. Some commonly grown basmati cultivars in Nepal. (Source: B.K. Joshi)

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lowed within two months by a reasoned statement of opposition. If the opposition is valid, the two parties need to consult to find a resolution within a reasonable period not exceeding three months. If no agreement is reached, the Commission takes the final decision, https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification_en.

Nepal applied notice of opposition with 13 brief statements related to origin, diversity, history, cultivation, and use values of Basmati rice in the Department of Agriculture, EU on 9 December 2020, considering Basmati rice under-protected geographical indication (PGI). The details of the reasoned statement of opposition were submitted to the EU on 4 February 2021, including 70 references. In this submission, Nepal reported the distribution of Basmati rice from 200 to 1530 m altitude in the country. Nepal also provided the passport of 26 Basmati accessions stored in National Genebank, Nepal, and 68 accessions conserved in foreign Genebank including IRRI Genebank. Nepal has strong evidence and proof of historical connection with Basmati rice. Therefore, Nepal applied an opposition application for this notice on GI tag to Basmati rice so that the rights of Nepalese communities would not be prohibited.

There were 12 notices of opposition to the Indian application on the GI tag to Basmati rice in the EU. The applicant (India) consulted individually in writing. The applicant requested the extension of the deadline for consultations. The European Commission (EC) then extended the consultation period by three months. This period started on the day after the date of expiration of the original deadline, and the consultation period expired on 21 June 2021. The applicant reported the outcome of the consultations to the Commission within a month from the end of the consultations, and thus by 21 July 2021. We did two rounds of consultation discussion.

In the first-round consultation, the applicant reacted to our opposition details in four major headings. First is the lack of clarity in the Reasoned Statement in opposition. They said the applicant was not in a position to understand the object and purpose of the opposition and was therefore impeded in undertaking adequate consultations. The second was, Basmati is not protected in Nepal. They reported that the application for registration must show proof that the name is protected in the country of origin. The third, the compliance with an inexistent specification is not verified. It is said that for Nepal, there is no protection (either as a trademark or as a stand-alone GI), and therefore, there is no specification. Fourth is, Nepal does not have a tradition in producing Basmati. Unexpectedly, they said that Basmati is not a traditional gastronomic heritage of Nepal. GI is to protect the gastronomic heritage of those who have kept

traditions alive, and there is no evidence of rice growers in Nepal keeping the tradition of Basmati alive. The applicant summarized without valid judgment of the opposition as follows. The Reasoned Statement in Opposition from Nepal does not demonstrate, to the extent required by the EU Quality Regulation, that Basmati is a traditional product of Nepal. Equally importantly, the Reasoned Statement in Opposition does not allow the Applicant to understand the grounds for the opposition properly or to determine what the Opponent is seeking using the Opposition.



Picture 3. Basmati rice grains. (Source: B.K. Joshi)

In the second-round consultation, Nepal further submitted elaborately the historically cultivated areas of Basmati rice with different types of maps, publications, brands, and trademarks, etc. It was stated that at present, Basmati rice is protected under Nepal Patent, Design, and Trademark Act 1965. The conflict within India among different States about Basmati rice was also highlighted during the consultation.

The applicant was informed that there was nothing in the submission of 18 June 2021 which alters the views of the Applicant. They reiterated that Basmati is not grown traditionally in Nepal. The report did not meet the standard characteristics of Basmati rice as set out in the applicant's document. The applicant mentioned that for Nepal, any aromatic rice is entitled to be called Basmati, and this is not correct. They highlighted the significant evidence of the use of rice varieties from the Philippines, Japan, and Assam in Nepal. The applicant cannot know that the rice packed in these packages labeled Basmati is Basmati, meeting the technical characteristics of Basmati. They said there is a significant trade in Basmati from India to Nepal, and some of the packages might be correctly labeled; the rice itself may be from India.

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Nepal responded to the letter dated 20 July 2021 of the applicant through email. The applicant's addressed to each of the opponent's points is vague, and we simply found the applicant's reasoning unscientific and superficial and is unable to answer any of the reasons and justifications for the opposition we have stated with evidence and clear reasoning. We could not see any justification on the applicant's statement and stated superficially, even though we have submitted clear scientific, cultural, historical, and religious evidence. We remarked that no one country could prohibit the inherent right of farmers to use native technologies in those countries.

The 21 July was one month after the end of the 6 months consultation period, which started on 21 December 2020. The applicant did not consider Nepal, which has provided many reasons why Basmati should not be registered as a GI in line with the Single Document as published. The agreement was not reached with Nepal. All consultation written documents were submitted by the applicant on 21 July 2021.

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जनसांख्यिक लाभांश र नेपालको कृषि: अवसर तथा चुनौती

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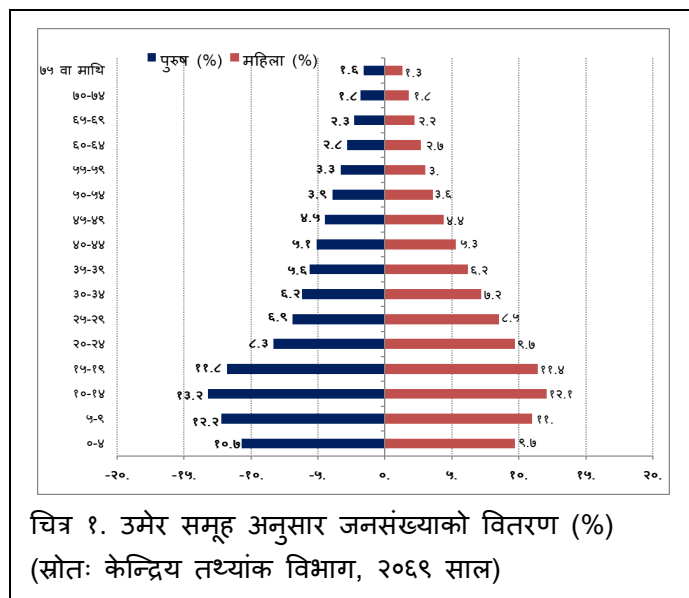
नेपाल अब, विशेषगरी राजनीतिक परिवर्तनपछि, आर्थिक विकासको बाटोमा अघि बढ्नुपर्छ भन्ने करामा दुई मत नै छैन । देशको समग्र विकासका लागि कृषि, जलस्रोत, (ग्रामीण वा कृषि) पर्यटन, रेमिट्यान्स आदि आधारहरूको महत्वबारे खुब सुनिन्छ र हो पनि । तर ती आधारलाई चलायमान बनाउने एउटा महत्वपूर्ण पूर्वाधार जनस्रोत वा मानवीय स्रोतबारे भने कम्ति सुनिन्छ । सायद मानव संसाधनको व्यवस्थापन गर्ने कार्य त्यति सजिलो नभएँ होला, यसको चियोचर्चो कम्ति सुनिन्छ । त्यसैले यस लेखमा नेपालको जनस्रोत र हाल उपलब्ध जनसांख्यिक लाभांश (demographic dividend) बारे मोटामोटी रूपमा जानकारी प्रस्तुत गर्दै खासगरी हाल उपलब्ध जनस्रोतबाट प्राप्त लाभांश कृषिमा उपयोग गर्दै आर्थिक विकासतर्फ जान सकिने सम्भावना र चुनौतीबारे केही विचार प्रस्तुत गर्दछु । यस लेखले समस्याका समाधानको उपाय पस्कनेभन्दा विज्ञहरूबीच नीतिगत बहसका लागि प्रवेश विन्दुको काम गरौं भन्ने लक्ष्य राख्दछ । सर्वप्रथम, नेपालको जनसंख्याको संरचनाबारे केही तथ्यांक प्रस्तुत गर्दछु । वि.सं. २०७८ को जनगणना आउन बाँकी नै भएको हुँदा २०६८ साल (सन् २०११) कै जनगणनाको तथ्यांकलाई आधारका रूपमा प्रस्तुत गर्दछु ।

नेपालमा जनसंख्याको संरचना

२०६८ सालको जनगणनाअनुसार नेपालको जनसंख्या २ करोड ६५ लाख छ । महिलाहरूको संख्या (१ करोड ३७ लाख वा ५१.७ प्रतिशत) पुरुषको (१ करोड २८ लाख वा ४८.३ प्रतिशत) भन्दा बढी छ । तर उमेरअनुसार यो अलि फरक छ । २०७७ सालको प्रारम्भिक अनुमानअनुसार करिब २ करोड ९२ लाख जति पुगेको छ ।

सिद्धान्ततः धेरैजसो कम विकसित मुलुकहरूमा जनसंख्याको संरचना पिरामिड आकारको अर्थात् पिँधमा फैलिएको र टुप्पोमा साँघुरिएको हुन्छ । अर्को अर्थमा भन्नुपर्दा जन्मदर धेरै हुने गर्दा बच्चाबच्चीको संख्या धेरै हुनाले पिँध फैलिएको हुन्छ र मृत्युदर धेरै हुने वा अन्यकारण जस्तै बसाइँसराइले गर्दा उमेर बढेसँगै माथिल्लो उमेर समूहमा जनसंख्या पनि पातलिँदै जाने भएकाले टुप्पो साँघुरिएको हुन्छ । वि.सं. २०५८ सम्म (सन् २००१)

नेपालको जनसंख्याको संरचना पनि त्यस्तै थियो । तर चित्र १ अनुसार, अब २०६८ सालयता भने नेपालको जनसंख्याको संरचनामा परिवर्तन हुँदै गएको कुरा प्रस्ट देखिन्छ । उदाहरणका लागि, ०-४ वर्ष उमेर समूहका बच्चाबच्चीभन्दा माथि (जस्तै ५-९ वा १०-१४ वर्ष) को जनसंख्या बढी छ र त्यसपछि भने घट्दै गएको छ ।

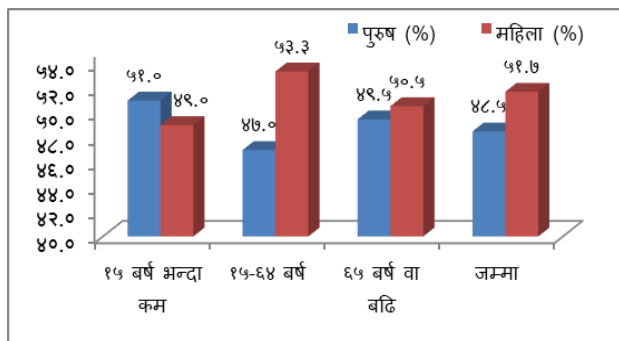


चित्र १. उमेर समूह अनुसार जनसंख्याको वितरण (%)
(स्रोत: केन्द्रिय तथ्यांक विभाग, २०६९ साल)

२०६८ सालमा १५ वर्षमुनिका बालबालिकाको संख्या ९१ लाख (३४.४ प्रतिशत) छ । यो अरुमा भर पर्ने उमेर समूहको जनसंख्या हो । यो समूहमा छोराको संख्या छोरीको भन्दा बढी छ अर्थात् छोराहरूको संख्या करिब ४७ लाख (५१.७ प्रतिशत) छ भने छोरीहरूको संख्या करिब ४५ लाख (४८.३ प्रतिशत) छ (चित्र २) ।

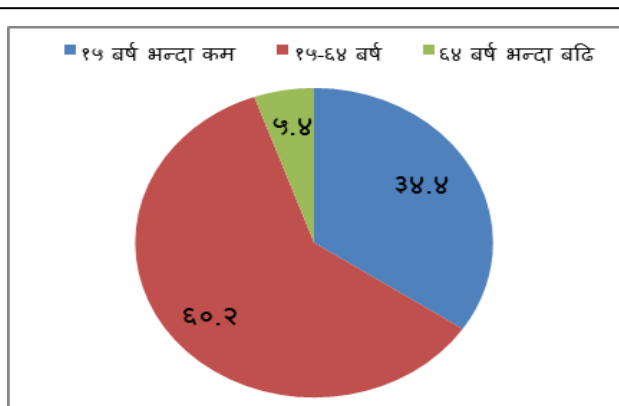
अर्कोतर्फ ६५ वर्ष वा सोभन्दा माथिको संख्या भने निकै कम वा ५.४ प्रतिशत मात्र छ । यो पनि अरुमा भर पर्ने उमेर समूहको जनसंख्या हो । यो समूहमा भने पुरुषको भन्दा महिलाको संख्या थोरैले बढी छ । पुरुषको संख्या ७ लाख १२ हजार (४९.५ प्रतिशत) छ भने महिलाको संख्या ७ लाख २६ हजार (५०.५ प्रतिशत) छ । वृद्धावस्थामा महिलाहरूभन्दा पुरुषहरू धेरै उमेरसम्म बाँच्दा रहेछन् भन्ने हो ।

जनसांख्यिक लाभांश र नेपालको कृषि...



चित्र २. २०६८ सालमा उमेर अनुसार महिला पुरुषको वितरण (स्रोत: केन्द्रीय तथ्यांक विभाग, २०६९ साल)

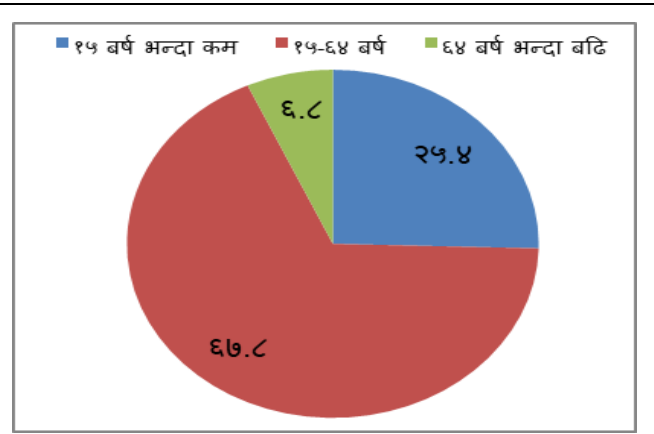
१५ वर्षमुनिका बालबालिका र ६५ वर्ष वा सोभन्दा माथिका वृद्धवृद्धाहरू आर्थिक हिसाबले परनिर्भर (economically dependent) मानिन्छन् । २०६८ सालको जनगणनाअनुसार नेपालको परनिर्भर जनसंख्या करिब ४० प्रतिशत छ (१५ वर्षमुनिका बच्चाबच्चीको ३४.४ प्रतिशत र ६५ वर्षमाथिका वृद्धवृद्धाको संख्या ५.४ प्रतिशत) (चित्र ३) । अर्थात् १० जनाको एउटा परिवारमा ४ जना आर्थिक रूपमा सक्रिय छैनन् र जीविकोपार्जनका लागि उनीहरू घरका अरु ६ जनामा आश्रित छन् । वा ६ जनाले काम गरेर ४ जना अरु सदस्यलाई हेरचाह गर्नुपर्ने अवस्था छ । अबको १० वर्षमा (२०८८ सालमा) यो परनिर्भरता अनुपात अझ राम्रो हुनेछ अर्थात् घटेर करिब ३२ प्रतिशत मात्र परनिर्भर जनसंख्या हुने अनुमान छ । अर्को शब्दमा १० जनाको परिवारमा करिब ७ जनाले काम गरेर बाँकी ३ जनालाई पाल्नुपर्ने हुन्छ । धेरै जनाको उत्पादनले थोरै पाल्नुपर्ने हालको अवस्था आर्थिक हिसाबले धेरै राम्रो मानिन्छ । अब म तल जनसांख्यिक लाभांश (demographic dividend) बारे कुरा गर्दछु ।



चित्र ३. उमेर समूह अनुसार जनसंख्याको वितरण (%) (स्रोत: केन्द्रीय तथ्यांक विभाग, २०६९ साल)

के हो जनसांख्यिक लाभांश (Demographic Dividend) ?

नेपालको इतिहासमै पहिलोपटक जनसंख्याको करिब ६० प्रतिशत हिस्सा काम गर्न सक्ने वा १५-६४ वर्षको उमेर समूहमा छ (चित्र ४) । घट्दो जन्मदर र बढ्दो औसत आयुका कारण यो हिस्सा अबको २ दशकमा ६८ प्रतिशतको हाराहारीमा पुग्ने अनुमान छ । जनसंख्याको ठूलो हिस्सा उत्पादनशील उमेरको छ र सानो संख्या अरुमा निर्भर हुने समूहको छ । कुनै पनि भौगोलिक क्षेत्रमा परनिर्भर जनसंख्या उत्पादनशील जनशक्तिभन्दा थोरै हुनु त्यस क्षेत्रको विकासका लागि सुनौलो अवसर हो । जनसंख्या वृद्धिदर र मृत्युदरको घट्दो क्रम सँगसँगै उमेरअनुसार जनसंख्याको संरचनामा परिवर्तन भई परनिर्भरभन्दा उत्पादनशील जनस्रोत संख्या बढ्दै जान्छ र उपलब्ध उत्पादनशील जनस्रोतको सही ढंगले उपयोग गर्दा देशको आर्थिक विकासमा तीव्रता ल्याउन सकिने कालखण्ड सुरु हुन्छ । यस्तो कालखण्डलाई जनसंख्या अध्ययनशास्त्रीहरू (Demographer) र अर्थशास्त्रीहरू जनसांख्यिक लाभांशको समय भन्छन् । साधारणतया यस्तो समय मोटामोटी २ देखि ३ दशक सम्म रहन्छ । कुनै देशमा ४-५ दशक पनि रहेको पाइन्छ र कुनै देशमा त्यो छोटो पनि हुन्छ ।



चित्र ४. उमेर समूह अनुसार जनसंख्याको वितरण (%) (बि.सं. २०८८ सालको अनुमानीत) (स्रोत: केन्द्रीय तथ्यांक विभाग, २०६९ साल)

जनसांख्यिक लाभांशबाट कसरी फाइदा हुन्छ ?

जनसांख्यिक लाभांशबाट प्रत्यक्ष वा अप्रत्यक्ष रूपमा निम्नानुसार फाइदा लिन सकिन्छ:

पहिलो त काम गर्न सक्ने उमेर समूहका श्रमिकको उपलब्धता नै हो र यो जनशक्तिलाई उत्पादनशील व्यवसायमा लगाई बढीभन्दा बढी उत्पादन गर्न सक्नु हो । त्यसका लागि उत्पादनमुखी रोजगारको व्यवस्था अति नै महत्वपूर्ण हुन्छ ।

जनसांख्यिक लाभांश र नेपालको कृषि...

अर्को भनेको अरुमा निर्भर जनसंख्या (dependent population) कम हुँदा काम गर्ने उमेरका व्यक्तिले उत्पादन गरेको वा कमाएको उत्पादन वा पैसा बचत हुन जाने र त्यो बचतलाई उत्पादनमुखी व्यवसायमा लगानी गर्न सकिएमा आर्थिक उन्नतितिर अगाडि बढ्न सकिने हो । स्वस्थ जनशक्ति उत्पादन अर्को फाइदा हो । महिलाहरूले थोरै बच्चाबच्ची जन्माउँदा उनीहरूको स्वास्थ्य पनि राम्रो हुने, स्वस्थ आमाबाट जन्मेका बच्चाबच्ची पनि स्वस्थ हुने र बच्चाबच्चीको राम्रो हेरचाह गर्न सक्दा उनीहरूको पनि स्वास्थ्य राम्रो भई मानव स्वास्थ्यमा लगानी कम गर्नुपर्ने कारणले हुनआउने बचत पनि देश विकासमा लगाउन सकिनेछ । उत्पादनशील रोजगारीका कारण व्यक्ति वा परिवारको आम्दानी बढ्ने हुँदा घरायसी खपतका लागि वस्तुको माग बढ्न गई अझ बढी उत्पादनमा जोड दिनुपर्ने कारणले पनि थप विकासमा टेवा पुग्ने हुन्छ ।

पूर्वी एसियाका धेरै देश जस्तै: दक्षिण कोरिया, थाइल्यान्ड, मलेसिया र युरोपेली देश आयरल्यान्डले जनसांख्यिक लाभांशबाट फाइदा लिइसकेका उदाहरण छन् । अब भने दक्षिण यशियाली राष्ट्रहरूको पालो हो । मध्यपूर्वी देश, केही पूर्वी एसियाका देशहरू, युरोपेली राष्ट्रहरू, अमेरिका र अस्ट्रेलियाले भने अरु देशको जनसांख्यिक लाभांश उपयोग गरी (श्रमिकहरूको बसाइँसराइ मार्फत) फाइदा लिन सफल छन् ।

नेपालको कृषि क्षेत्रले जनसांख्यिक लाभांशबाट फाइदा लिन अवसर

भौगोलिक, सामाजिक तथा सांस्कृतिक विविधता, जातजातिमा धनी, प्रचुर मात्रामा रहेका प्राकृतिक स्रोत र व्यावसायिक कृषि उपजमा विशाल सम्भाव्यतामा उत्पादनशील जनस्रोतको उपयोगिता देश विकासका लागि ठूलो अवसर हो । नेपालमा जनसांख्यिक लाभांशको काल सुरु भइसकेको छ । यो समयको उपयोग गरी अधिकतम फाइदा लिन सक्नु अहिलेका लागि ठूलो अवसर हो र चुनौती पनि । बिस्तारै जनसंख्या वृद्धिदरको घट्दो क्रम र काम गर्न सक्ने उमेरका मानिसहरूको उमेर ढल्कंदै जाने र बाँच्ने समय पनि बढ्दै जाने हुनाले जनसांख्यिक लाभांशबाट फाइदा लिन सक्ने समय पनि घट्दै जान्छ । त्यसैले हाल उपलब्ध जनशक्तिलाई अहिले नै राम्रोसँग व्यवस्थापन गर्न र देश विकासमा परिचालन गर्न सके मात्र फाइदा लिन सकिन्छ । करिब दुई-तीन दशकपछि हालको सक्रिय जनशक्ति प्रौढावस्थामा जाने र जनसंख्या वृद्धिदरको घट्दो क्रमले गर्दा काम गर्न सक्ने उमेरको जनशक्ति कम हुँदै जाने हुँदा अहिलेदेखि नै उपयुक्त व्यवस्थापन गर्न सकिएन भने हामीले यो सुनौलो

अवसर गुमाउने पक्का छ । जनसांख्यिक लाभांशको फाइदा लिन जनसंख्याको संरचना, उमेरअनुसारको वितरण तथा तिनीहरूको गुणस्तर (शैक्षिक, आर्थिक, स्वास्थ्य स्थिति, आदि) मा भर पर्दछ । नेपालमा जनसांख्यिक लाभांशको समग्र अर्थतन्त्र र कृषिक्षेत्रले फाइदा लिन प्रशस्त सम्भावना र अवसर छन् । केही अवसर छोटकरीमा तल प्रस्तुत गर्दछु ।

- इतिहासमै पहिलो पटक नेपालमा आर्थिक दृष्टिकोणले सक्रिय र उत्पादनशील जनस्रोत परनिर्भर जनस्रोतभन्दा बढी भएको अवस्था छ । यो अवस्थामा उपलब्ध जनशक्तिलाई उत्पादनमुखी र सेवामुखी कृषि कार्यमा सहभागी गराई समग्र देशको दिगो सामाजिक-आर्थिक विकास तीव्र पार्न सक्नु अहिलेको सुनौलो र प्रमुख अवसर हो । यो जनशक्तिबाट अहिलेदेखि २-४ दशकभित्रमा फाइदा लिन सकेनाँ भने फेरि यो समय फर्कै आउँदैन ।
- हाल उत्पादनशील जनस्रोतको उत्पादकत्व बढाउन शैक्षिक स्तर र सीप पनि कम भएको हुँदा देश सुहाउँदो सीपमूलक, व्यवसायमूलक व्यावहारिक शिक्षा वा तालिमको खाँचो छ । जनस्रोतको इच्छा र आवश्यकताको पहिचान गरी व्यवसायमूलक तालिम कार्यक्रम सञ्चालन गर्न लगानी बढाउनु जरूरी छ । उदाहरणका लागि व्यावसायिक कृषि वा ग्रामीण कृषिमूलक पर्यटन आदि । यसैअनुसारको शिक्षाको विकास गर्नु अहिलेको आवश्यकता र प्राथमिकता हो ।
- जनस्रोतको उत्पादकत्व बढाउन स्वस्थ जनस्रोतको खाँचो हुने भएकाले स्वास्थ्य सेवाको विकास र विस्तार गर्ने अर्को अवसर हो ।
- हाल देशमा उत्पादनशील उमेरको जनस्रोतमध्ये पुरुषको भन्दा महिलाको संख्या धेरै छ । त्यसैले महिला सहभागिताविना देश विकास सम्भव छैन । हाम्रो जस्तो पितृसत्तात्मक सोच भएको समाजमा लैंगिक समानता, महिला सहभागिता र महिला सशक्तीकरण त्यत्तिकै महत्वपूर्ण हुन्छ । त्यसैले उत्पादनशील व्यवसायमा महिला सहभागिता बढाई विकास कार्य तीव्र पार्नु ठूलो अवसर हो र चुनौती पनि ।
- प्रत्यक्ष वा अप्रत्यक्ष रूपमा उत्पादनशील जनस्रोतबाट वैदेशिक रेमिट्यान्सका रूपमा लाभ लिन सुरु भइसकेको छ । इतिहासमै सबैभन्दा धेरै रेमिट्यान्स भित्रेको यो पहिलो दशक नै हुनुपर्दछ । यो रेमिट्यान्सको प्रयोग उत्पादनमा लगानी गर्नुभन्दा उपभोग्य वस्तुमा खर्च भइरहेको अवस्थामा

जनसांख्यिक लाभांश र नेपालको कृषि...

त्यसको उपयुक्त लगानी गर्ने वातावरण सिर्जना गरी विकासमा लगाउन सक्नु सुनौलो अवसर हो । तर सधैं हाम्रो उत्पादनशील जनस्रोत बाहिर पठाउने र रेमिट्यान्समा भरपर्नु भने दिगो विकासका लागि उपयुक्त हुँदैन ।

- अर्को लाभ भनेको विदेशमा काम गर्ने जनसंख्या घर फर्कदा आफूसँग लिएर आउने social remittance जस्तै काम गर्ने बानी (work ethics), सीप तथा ज्ञान हो । यो जनशक्ति मुलुकका निम्ति ठूलो पुँजी हो र यो जनशक्ति फर्केपछि वा हाल फर्केको जनशक्तिसँग भएको सीप, ज्ञान पहिचान गर्ने र त्यसको सदुपयोग गरी देश विकासमा लगाउने अर्को राम्रो अवसर हो ।

चुनौतीहरू

झट्ट हेर्दा जनसांख्यिक लाभांशबाट फाइदा उठाउन सरल देखिए पनि भने जति सजिलो भने छैन र सोचेजस्तो तरिकाले आफैं यो लाभांश प्राप्त पनि हुँदैन । त्यसका लागि समग्र देशकै लागि उपयुक्त नीति बनाउन र सफलतापूर्वक लागू गर्न जरुरी हुन्छ । नेपालको राष्ट्रिय जनसंख्या नीति २०७१ त बनिसकेकै छ । तर हाम्रासामु थुप्रै चुनौती तेर्सिएका छन् । यी चुनौतीहरू कृषिमा मात्र नभई समग्रमा देशका लागि नै छन् ।

- नेपालमा अधिकांश जनसंख्या कृषिमै निर्भर छ र कृषि जीविकोपार्जनमुखी मात्र छ । थोरै मात्रै खेतीयोग्य जमिनमा धेरै जना आश्रित हुनुपर्ने, खेतीपाती आकासे पानीमा भर पर्नुपर्ने, कृषिमा आधारित श्रमिकको उत्पादकत्व पनि थोरै, र लगानी पनि न्यून भएकाले कृषिमै आधारित जनसंख्यालाई पनि रोजगार दिन र खाना पुर्याउन धौ-धौ छ । अझ त्यसमा पनि हाल काम गर्न सक्ने उमेर समूहका ४० देखि ६० लाख युवाहरू बिदेशीकाले कृषि क्षेत्रलाई प्रत्यक्ष वा अप्रत्यक्ष रूपमा असर थोपरेको छ । खेतीपाती या त बूढाबूढी आमाबुवाको जिम्मा छ या त महिला र बालबालिकाको हातमा, या त काम गर्ने मजदुरको अभावमा खेतबारी बाँझा रहेका छन् । त्यसैले हाम्रो जस्तो सानो स्केलको कृषिले जनसांख्यिक लाभांशबाट फाइदा उठाउन उत्पादनशील जनस्रोतको उपयुक्त प्रयोग गर्ने नीति बनाउन आवश्यक छ र ठूलो चुनौती पनि ।
- देशको राजनीतिक अस्थिरता, आर्थिक विपन्नता, अस्वस्थ राजनीतिक प्रतिस्पर्धा र घुसघोरीको सिकार भएको सरकारी संयन्त्र भएसम्म भएका नीति राम्रोसँग लागू गर्न सकिँदैन । यसका लागि चुस्त सरकारी संयन्त्र, सक्षम सरकार तथा

कानुनी राज्यको स्थापना जरुरी छ । यो नै सबैभन्दा महत्वपूर्ण चुनौती हो ।

- आवश्यक पूर्वाधारको अभावमा उपलब्ध जनशक्तिको उपयोग कसरी गर्ने ? विडम्बना के भने हाम्रो जनशक्तिबाट हामी आफैले लाभांश उठाउनुपर्नेमा अरुले नै उठाइरहेका छन् । एकातिर व्यवसायमूलक व्यावहारिक तालिम र ज्ञान नभएको वा कम भएको जनशक्ति प्रशस्त हुनु र अर्कोतिर यो जनशक्तिलाई उपयोग गर्न देशभित्रै रोजगारीका अवसर छैनन् । वैदेशिक रोजगारले केही हदसम्म यो समस्या हल गरेको भए पनि यो दिगो समाधान भने होइन । भोलिका दिनमा विदेशमा श्रमिकको माग स्वातन्त्र्य घटन गए वा बन्द भए के गर्ने ? मलेसियामा श्रमिकको माग घटी नेपाली युवाहरू अलपत्र परेको हामीले भोगेकै हो । साथै भर्खरै मात्र कोरोना महामारीले श्रमिकहरू घर फर्कदा पनि त हामीले समस्या भोगेको र भोग्दै गरेको त ताजै छ ।
- रोजगारका लागि अधिकांश युवाहरू घर छोड्दा वा विदेशिदा
- जिल्ला तथा देशमै सामाजिक-आर्थिक संरचनामा असन्तुलन आएको छ । गाउँघरमा वृद्धवृद्धा, बच्चाबच्ची र महिलाको मात्रै उपस्थिति छ । पुरुषले गर्ने काम जस्तै हलो जोत्नुका साथै खेतीपाती पूरै आफैले हेर्नु, बालबालिका तथा वृद्धवृद्धा बाबुआमाको हेरचाह गर्ने आदि पनि महिलाको पोल्टामा आइपरेकाले उनीहरूमा अझ बढी बोझ थपिएको छ ।
- काम गर्ने श्रमिकहरू विदेशिदा खेतीपातीमा पनि निकै असर परेको छ । उत्पादन कम हुने वा जग्गा बाँझो रहने जस्ता कारणले उत्पादन कम भई पोषणमा असर पारी जनस्वास्थ्यमा चुनौती हुनसक्छ । हुन त रेमिट्यान्सले केही हदसम्म यो चुनौती पार लगाउन मद्दत गरेको छ तर पनि यो दिगो हुँदैन ।
- अब बिस्तारै वृद्धवृद्धाको संख्या बढ्दै जान्छ र अबको ३०-४० वर्षमा यो संख्या ठूलै हुन्छ । एकातिर बिस्तारै बच्चाबच्चीको संख्या घट्दै जानाले काम गर्ने जनशक्ति घट्दै जाने र अर्कोतिर अहिले काम गर्न सक्ने उमेरका मानिसहरूमा बुढ्यौली लागी काम गर्न नसक्ने उमेरमा पुग्दा तिनीहरूको रेखदेख कसले र कसरी गर्ने भन्ने अर्को ठूलो चुनौती छ । त्यसबारे अहिले नै राम्रोसँग सोचेर रणनीति नबनाउने हो भने भविष्यमा अझ ठूलो समस्या निम्तनेछ । विश्वका विकसित देशहरू हाल यही समस्याबाट गुज्रिरहेका छन् । त्यहाँ काम गर्न सक्ने उमेरका मानिसको तुलनामा

जनसांख्यिक लाभांश र नेपालको कृषि...

वृद्धवृद्धाको संख्या धेरै भएकोले तिनीहरूको स्याहारसम्भार गर्न अर्थतन्त्रले नधानेपछि बाहिरी देशबाट कामदार भित्र्याई त्यहाँको अर्थतन्त्रलाई टेवा दिने काम भइरहेको छ । भविष्यमा आइपर्ने यो समस्यालाई देशले कसरी पार लगाउने भन्ने आजको अर्को चुनौती हो ।

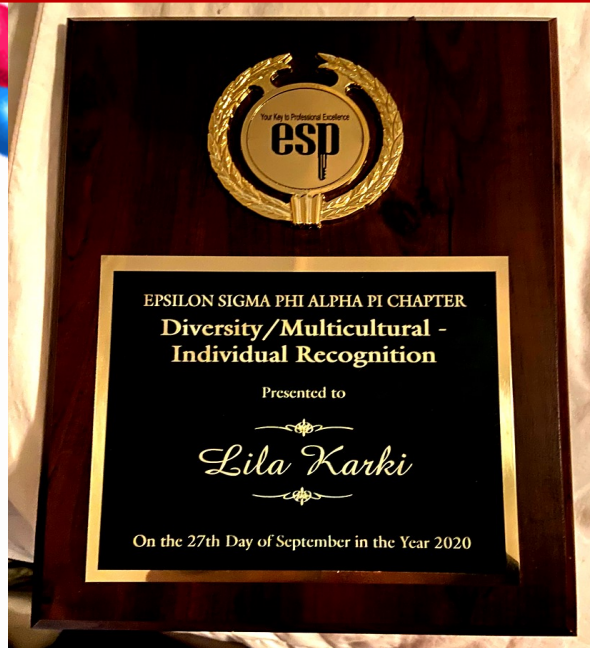
- त्यसै गरी हाम्रो जस्तो भौगोलिक विविधता र विषमता, विविध जनजाति, जातजातिमा असमानता र विभेद, आर्थिक वितरणमा चरम असमानता, गुणस्तरयुक्त शिक्षाको कमी, गरिबीले आक्रान्त समाज, पितृसत्तात्मक सोच र लैंगिक विभेद व्याप्त भएको देशमा सबैको चाहनाअनुसार देश विकासमा सहभागी गराउनु अझै ठूलो चुनौती छ ।

अन्त्यमा, हाल जनसंख्याको बदलिदो संरचना याने कि घट्दो जन्मदर, थोरै वृद्धवृद्धाको संख्या र धेरै उत्पादनशील जनशक्तिको उपलब्धताको उपयोग गरी अधिकतम लाभांश हात पार्ने बेला हो । सामाजिक-आर्थिक विकासका लागि फड्को मार्ने सुनौलो मौका हो । कृषि क्षेत्र यसका लागि बलियो आधार हो । जनसांख्यिक लाभांशबाट फाइदा उठाउन काल सुरु भइसकेको छ र २-४ दशकभन्दा त्यति लामो पनि रहँदैन । भने जस्तै वा सोचे जस्तै लाभांश त्यति सजिलै पोल्दामा खस्नेवाला पनि छैन । यसका

लागि समग्र देशकै लागि उपयुक्त नीति बनाउन र सफल कार्यान्वयन गर्न एकदम जरुरी हुन्छ । लाभांशबाट फाइदा उठाउन गुणस्तरयुक्त शिक्षा, सीपमूलक तालिम तथा स्वास्थ्यमा लगानी, उत्पादनशील क्षेत्र जस्तै कृषि, पर्यटन, बिजुली आदिमा लगानी गर्ने महत्वपूर्ण कदम हुन् भने उपयुक्त पूर्वाधारहरू बनाई स्वदेशमै रोजगारीका अवसरहरूको खोजी गर्ने र जनतालाई रोजगारी दिई देश निर्माण गर्ने समय हो । देशको राजनीतिक अस्थिरता, आर्थिक विपन्नता र बढ्दो असमानता, अस्वस्थ राजनीतिक प्रतिस्पर्धा, अस्वस्थ र घुसघोरीको सिकार भएको सरकारी संयन्त्र रहँदासम्म भएका नीति राम्रोसँग लागू गर्न सकिदैन । यसका लागि चुस्त सरकारी संयन्त्र, सक्षम सरकार तथा कानुनी राज्यको स्थापना जरुरी छ । तर यसो भन्दैमा निराश हुँदै टाउकामा हात राख्न थालियो भने समस्या झनै थपिँदै जानेछन् भन्ने कुरामा दुईमत छैन । भोलि कहिल्यै आउँदैन । त्यसैले आजैबाट सुरु गरौं ।

सन्दर्भ सामाग्री

केन्द्रीय तथ्यांक विभाग (२०६९) - Central Bureau of Statistics. (2012). National Population and Housing Census. Government of Nepal, Kathmandu, Nepal.



**Congratulations, Dr. Karki,
Immediate Past President of NAPA**

कृषक आवाज

कृषक सागर बानियाँको कथा



फोटो स्रोत: Nepalraibar.com

म्याग्दीको बेनी नगरपालिका-९ तोरीपानीका कृषक सागर बानियाँले जडीबुटीको व्यावसायिक खेती गरेर वार्षिक रु. २० लाखभन्दा बढी आमदानी गर्दै आउनुभएको छ । जिल्लामा नमूना टिमुर कृषकको रूपमा चिनिनुभएका बानियाँले टिमुरको बिरुवाका साथै आयुर्वेदिक औषधिका लागि प्रयोग गरिने बहुमूल्य जडीबुटी सतुवाका बिरुवा पनि उत्पादन गर्नुभएको छ । सतुवाका बिरुवा उत्पादन गर्न थालेपछि नर्सरीमै बिरुवा लिन आउनेको घुइँचो लाग्न थालेको उहाँले बताउनुभयो ।

“इन्टरनेटको प्रयोग गरी धेरै ज्ञान सिके, सीप भए सतुवाबाट राम्रो कमाइ हुने रहेछ”, कृषक बानियाँले भन्नुभयो । एक वर्षमै ४० पाथी टिमुर घरबाटै बेच्ने गर्नुभएको उहाँको खेतबारीमा रहेको बोटमा नफल्दै स्वदेश तथा विदेशबाट बुकिङ हुने गरेको जानकारी गराउनुभयो । टिमुर अचार, दाल र चटनीमा मसलाको साथै शरीरलाई न्यानो बनाउन, हाडजोर्नी, पेट दुख्दा, र लेक लाग्दा आयुर्वेदिक औषधिको रूपमा प्रयोग गरिने भएकाले बजारमा टिमुरको माग धेरै छ ।

समुद्री सतहदेखि एक हजार ५०० मिटरमाथि उचाइसम्म सतुवा खेतीका लागि उपयुक्त हुने भएकाले सोचेजस्तो आमदानी भएको उहाँको भनाइ छ । वनजङ्गलमा पाइने सतुवाको आधुनिक खेतीलाई समुदायमा एकल वा सामूहिकरूपमा करिब १० रोपनी जमिनमा अब छिट्टै खेती गर्ने योजना रहेको कृषक बानियाँले जानकारी दिनुभयो ।

कृषक टीकाराम सापकोटाको कथा

बागलुङ नगरपालिका-४ कुँडुलेका टीकाराम सापकोटाले गरेको कृषि कर्म हेरेरै धेरैले कृषि पेसामा हात मात्रै हालेका छैनन्, सफल समेत भइसकेका छन् । ६५ वर्षका सापकोटा अहिले पनि अधिकांश समय खेतबारीमै व्यतीत गर्नुहुन्छ । “म कृषिको गुलियोमा भुलेको छु, कृषि पेसा जति गरे पनि धित नमर्ने कर्म रहेछ” सापकोटाले भन्नुभयो ।

सुरुमा अरुको जग्गा बन्दकी लिएर व्यावसायिक कृषि सुरु गर्नुभएका सापकोटाले अहिले आफ्नै पाँच रोपनी जग्गामा खेतीपाती गर्नुहुन्छ । आफूले कृषिको बारेमा गाउँमा सबैलाई सिकाएको र केही बिरुवा गाउँका कृषक साथीलाई निःशुल्कसमेत बाँडेको सापकोटाको भनाइ छ । तरकारीलाई थाक्रा राख्न बाँस र डोरी किन्ने पैसा नभएर अन्य बिरुवाको थाक्रा र चामलको बोराको डोरी बनाएर कृषि सुरु गरेको विगत सापकोटाको लागि स्मरणीय छ । अहिले आफूले कृषिको बारेमा गाउँमा सबैलाई सिकाउने र बिरुवा समेत वितरण गरेको सापकोटा बताउनुहुन्छ । एक सिजनमा तीनदेखि चार लाखसम्मको तरकारी बिक्री गर्न सापकोटा, बागलुङ बजार नजिक पर्ने भएकाले तरकारी बेच्न बजारको समस्या नभए पनि बिचौलीयाको कारणले आफूले भने जति मूल्यमा बिक्री गर्न नपाएको गुनासो गर्नुहुन्छ । सापकोटाको बिचारमा तरकारीको बजार भाउ र कृषकले पाउने मूल्यमा धेरै अन्तर भएकाले यस विषयमा सम्बन्धित निकायले ध्यान दिन जरुरी छ ।



फोटो स्रोत: Halokhabar.com

(प्रस्तुत कथाहरू Krishidaily.com र Halokhabar.com मा हालै प्रकाशित समाग्रीहरूको आधारमा तयार पारिएको हो) ।

कविता

हाम्रो माटो पवित्र छ

आफ्नै मायाको मातृभूमिमा जन्मस्थलमा
नेपाली गौरवान्वित भइरहेछन् ।
विश्वको सर्वोच्च शिखर सगरमाथामा
पर्यटकहरु आकर्षित भइरहेछन् ॥

हाम्रो माटो पवित्र छ
पहाड, उपत्यकाको सिंगारमा ।
औषधी, जडीबुटीका रुखहरु छन्
हाम्रो यही कर्मधारमा ॥

सुगन्धित, मनमोहक फूलहरु छन्
हाम्रो देशको भूभागमा ।
जनावर, चराचुरुंगी, वनजंगलहरु छन्
हाम्रो सुन्दर प्रेमको प्रितियोगमा ॥

खनिज, ताल, नदी पनि छन्
नेपालको यही मैदानमा ।
झरनाको विशाल जलस्रोत पनि छन्
हाम्रो सुन्दर जन्मस्थलमा ॥

यहाँ विष्णु प्रिया महादेवी
सीताको रुपमा अवतीर्ण हुनुभयो ।
विष्णुको दशौं अवतार पनि
गौतम बुद्धको रुपमा अवतीर्ण हुनुभयो ॥

यो त्यही पवित्र स्थल हो
जहाँ वाल्मीकि, व्यासले तपस्या गरे ।
यो त्यही पावन भूमि हो
जहाँ राजा जनकले राज्य गरे ॥

नेपालको माटो पवित्र छ
आफ्नै मायाको जन्मस्थलमा, कर्मस्थलमा ॥



सुनिल पण्डित

धनौजी गाउँपालिका १, लखौरी, धनुषा