The Druk 3020 Curriculum

Curriculum Framework & Map

The Samdrup Jongkhar Initiative

The Druk 3020 Curriculum

GNH Teaching Modules for CGI and Beyond

The Druk 3020 Curriculum is a pilot project designed for implementation at Chokyi Gyatsho Institute (CGI), a monastery in Dewathang, Samdrup Jongkhar, East Bhutan, under the auspices of the Samdrup Jongkhar Initiative. Dzongsar Jamyang Khyentse Rinpoche chose the name Druk 3020 because he wanted educators to think not only about 100 years into the future, but a full millennium ahead. What will this planet look like and who will be leading it? SJI believes in the power of grassroots initiatives so even with that lofty goal, we are starting small. The objective is to create a set of twenty-four comprehensive secular educational units that can be used as a model for GNH-infused education and implemented in monasteries and possibly other schools and institutions in Bhutan. These integrated units will incorporate many of the learning objectives found in the standard Bhutanese educational system (i.e. math, science, social science, technology, health). An English language course will be developed and taught separately. The first set of six thematic units is being prepared for CGI's incoming class of June, 2013.

Table of Contents

Pages 1-11 ..... Framework Guidelines
Page 1 ..... Section one: Forward
Page 2 ..... Section two: Vision: What We Want for Our Students
Page 3 ..... Section three: Principles: Foundations for Curriculum Decision Making
Page 4 ..... Section four: Values
Page 4 ..... Section five: Key Competencies & Practical Outcomes
Page 5 ..... Section six: Learning Areas
Page 5 ..... Section seven: Official Languages
Page 6 ..... Section eight:: Effective Pedagogy
Page 7 ..... Section nine: Best Practices
Page 9 ..... Section ten: Assessment
Page 10 ..... Section eleven: Teaching in a Monastic Environment

Page 13-17 ..... **Curriculum Map**

Page 18 ..... **Appendices I-IV**
I. Chokyi Gyatso Institute as a Laboratory
II. Proposed Thematic Unit Subjects
III. Vision: Speech from Honourable Prime Minister
IV. Dzongsar Khyentse Rinpoche's Address to the Samdrup Jongkhar Initiative Launch
V. GNH Projection Tool*
VI. Budget and Timeline**

Page 24 ..... Bibliography & Acknowledgments

* *Web version only.
** Available upon request.

"Education is the key" – Dzongsar Jamyang Khyentse Rinpoche

Qualities of a GNH-educated graduate

Honourable Prime Minister, Lyonchhoen Jigmi Y. Thinley
Closing speech, Educating for GNH workshop, Thimphu, 12 December, 2009

"How might a GNH-educated graduate manifest in practice? At the end of our week together, it still feels somewhat easier to describe what such a graduate is *not***.** We know that what we want to see is very different from the economic animal that conventional educational systems so often seem to nurture, where success is measured by money, career, acquisition, fame, power, and self-aggrandizement.

"Knowing how different our vision and goals are, we know with certainty that what we want to see is nothing less than transformative — graduates who are genuine human beings, realizing their full and true potential, caring for others—including other species—, ecologically literate, contemplative as well as analytical in their understanding of the world, free of greed and without excessive desires; knowing, understanding, and appreciating completely that they are not separate from the natural world and from others; — in sum manifesting their humanity fully.

"I suppose the ultimate test is that a GNH-inspired education graduate will sleep soundly and happily at the end of each day knowing that she or he has given all to their families, to their communities, and to the world. If we and our young do not have this firm commitment, there is literally no future. In the end, a GNH-educated graduate will have no doubt that his or her happiness derives only from contributing to the happiness of others."

Excerpts from opening speech, Educating for GNH workshop, 7 December, 2009

"…We have identified education as the glue that holds the whole enterprise together. If we are ignorant of the natural world, how can we effectively protect it? If we don't know that smoking, junk food, and physical inactivity are unhealthy, how can we have a healthy citizenry? If we are ignorant of politics and of national issues, how can we cast an informed vote? If we are ignorant of the extraordinary teachings of Guru Rinpoche, Zhabdrug Ngawang Namgyal, and other great masters who taught and practised right here in Bhutan, how can we appreciate our legacy, embody our own culture, and serve the world?

We've actually reached the point where we no longer need to obsess too much more about definitions and concepts when we talk about GNH. If we want to help ourselves and the world, we now have to act decisively and effectively so that we embody what we express, and so that our behaviour and actions, rather than just our words and good intentions, not only realize the vision of our enlightened monarchs but act as a genuine and worthy example for a world desperate for sanity."

"We are on a special mission: to return to the true goal of education. Educating for Gross National Happiness is, therefore, a wonderful opportunity for all of us educators to return to the essential purpose of education—a process that gently draws the human mind to look for and to love what is true and good and useful."
Honorable Lyonpo Thakur S. Powdyel
Minister of Education, Bhutan

Vision: What We Want for Our Students

We want to help students become connected, actively-involved, life-long learners. To that end, we are developing a comprehensive secular education curriculum that can be delivered in five-week units individually or sequentially. The pilot project will be first implemented at the Chokyi Gyatso Institute where it will complement the existing rigorous monastic training. The Druk 3020 Curriculum is designed for students to develop the values, knowledge, competencies, and practical life skills that will enable them to live full and satisfying lives and to become contributing members of society.

<u>As connected individuals they will:</u>

- Possess a deep understanding of interdependence
- Relate well with others
- Effectively use of communication tools
- Become natural active members of their communities

<u>As actively involved citizens they will:</u>

- Understand and embrace GNH principles
- Understand their responsibilities, roles and opportunities in society
- Feel empowered to contribute to the well-being of Bhutan—socially, culturally, economically, and environmentally
- Participate as informed decision makers

"I've never let my school interfere with my education." – Mark Twain

<u>As life long learners, they will:</u>

- Know how to learn and how to think creatively
- Have the ability to find and use information with critical discrimination
- Possess knowledge, skill, wisdom, good character, and emotional maturity
- Actively seek, use and create knowledge
- Take responsibility for their education and development
- Enjoy learning for the sake of learning

What Does a Druk 3020 Graduate Look Like?

Ecological Literacy: Students will have an understanding of ecosystems and the capacity of the environment to sustain human activity within natural resource limits without compromising ecological integrity.

Interconnectedness: Students will see themselves as interdependent with each other, all living things, and natural systems. They will have a deep understanding of the law of cause, condition and effect and will put their knowledge and understanding to use in service of their lives, their communities and the world.

Multiple Perspectives: Students will truly value and learn from the experiences of others around them—across generations, cultures, and other divides.

Place: Students will understand the profound and complex way that the geography and ecology of a place interact with the society and culture of the people who live there.

Competency: Students will have life skills to be able to function effectively in society.

Sustainable Economics: Students will understand the true costs of human behaviour and economic activity, and how to measure well-being and progress genuinely, accurately, and holistically.

Responsible Citizenship: Students will understand their rights and responsibilities and the impact of their actions as citizens, and assume participatory roles in society. As active members of society they will work with others to provide effective solutions and ongoing service to their communities.

Creativity and Visioning: Students will creatively apply knowledge and skills to foster sustainable, "truly Bhutanese" solutions to current and future challenges. They will have the confidence, insight, and ability to see through, resist, and seek alternatives to consumer-driven cultural tsunamis.

Cultural Preservation: Students will have a deep appreciation for their rich cultural heritage and wisdom tradition and discern what cultural practices are worthy of preservation and what must change in order for future generations to thrive.

The foundations for the Druk 3020 initiative, differ from the current Bhutanese education model in that they aim to produce a curriculum not tied to standardized tests or certificates. This curriculum engages higher mental and emotional capacities at a time when "high stakes" testing has been critiqued for being at odds with students thinking and learning. The Druk 3020 principles, which underpin the development of this curriculum, serve to lessen the division between in-school learning and life-long learning. The aim is to educate the whole person in a way that engages and challenges students, is forward-looking and inclusive, reflects GNH values, and affirms their unique Bhutanese identity. The curriculum will provide a modern education that is consistent with traditional values.

Druk 3020 Curriculum:

- Has meaning for students, connects with their lives, and engages the support of their families, dzongkhags, and local communities
- Makes links within and across learning areas, and connects with their abilities, interests, culture, and local wisdom.
- Encourages students to reflect on their own learning processes and learn how to learn.
- Uses the local environment (both physical and cultural) as the context for imparting knowledge.
- Offers students a broad education with practical applications, teaches essential life skills, and opens up pathways to future learning.
- Encourages students to explore significant future-focused issues such as: sustainability, citizenship, equity, enterprise, and globalization/localization.
- Recognizes and honours the unique intelligence and learning style of each student.
- Requires continual feedback from teachers, peers, etc.
- Provides assessment tools that are closely linked with the students' own learning.
- Promotes cooperation rather than competition.
- Supports and empowers all students to learn and achieve personal excellence.

"During the course of running village schools in small hamlets of this hilly region, we realised our well-meaning efforts were often doing more harm than good. Village elders, specially the women, were the first to bring this to our attention. The kind of education generally imparted in the schools distanced the young students from whatever was their own – be it their language, custom, lifestyle or culture – and imbued in them a deep sense of inferiority. As a result of this alienation, they were induced into imitating what they considered to be the symbols of 'development'. Manual labour came to be looked down upon and the aspiration was for a desk job or sarkarinaukri[*]. Customs and traditions of village life were seen as backward and the city was perceived as the epitome of modernity. Our attempt is to bring the school closer to the child's own environment, closer to the child's own reality."
Pawan Kumar Gupta
Society for Integrated Development of Himala

[*] Indian government job.

The Four Pillars of Gross National Happiness

1. Environmental Conservation
2. Cultural Promotion
3. Sustainable and Equitable Development
4. Good Governance

"Infusing GNH into the education system is not adding a new subject but enriching learning, and improving the process of education. It has to do with creating a context and approach that infuse a GNH consciousness into everything that is learned and taught. This will make the curriculum and learning more enjoyable, more pleasurable, and more relevant. Often there is no clarity on why we teach things, and so, learning is inevitably boring. Infusing GNH understanding creates a purpose and goal for teaching and learning for both teachers and students that makes study less burdensome and more enjoyable."

—Honourable Prime Minister, Lyonchhoen Jigmi Y. Thinley

"Above all, we look upon our schools and institutions becoming morally and ethically green – that is developing an orientation of mind and heart that is positive in itself and that inspires positive thought and creative action in others. Our children growing and developing in such an environment will certainly build a society that is happy and at peace with itself. The stakes are high, but there is no other way to do our job. And [teachers] hold the key to the success of our mission."

—Lyonpo Thakur S. Powdyel

"What is necessary in value education is a process of expansion of our boundaries of consideration and caring consciousness of others beyond ourselves…"
—Karma Ura, A Prposal for GNH Value Education in Schools

Key Competencies & Practical Outcomes

Capabilities for Living and Lifelong Learning

Key competencies help people live meaningfully and contribute to a well-functioning society:

1. Thinking (cultivating creative, critical, and logical thinking; meta cognition; self-awareness and reflection)
2. Participating and Contributing (taking part in discourse; developing curiosity that translates into active involvement in and service to their communities)
3. Managing Self (making sound decisions, setting goals, and planning; distinguishing wants from needs)
4. Relating to Others (developing the knowledge, communication skills, attitudes, and values necessary for working and interacting with others.)
5. Using Language, Symbols and Texts (discovering meaning; comprehension)

Practical Outcomes

Druk 3020 students will develop the skills to live successfully and responsibly in the world, with a natural inclination to conserve nature and benefit others. They will learn to manage a household budget, apply first aid, sow a garden and grow vegetables, make sustainable choices at the market, provide awareness for their communities on issues such as preventing alcohol abuse and forest fires. Their appreciation for their communities and nation as a whole, and expanded understanding of local and global issues, will help stem rural-urban migration.

How Does a Druk 3020 Graduate Function in Specific Discipline Fields?

Learning Areas

Math
Students are comfortable applying math processes to the world around them. They can create and maintain personal and organizational budgets with accuracy, calculate with precision, and read the statistics in a news article with discernment. They have a general understanding of how the world of finance and economics works. With a firm grounding in math reasoning, they will know how and when to locate formulae as needed.

Science
Students appreciate the science at play in their ordinary, every day lives. Looking at the sky, they say *I know what that cloud is made if and how it got there*. They can assess basic wiring and know if it's safe to plug in a heater. They understand the basic principles behind frozen water pipes and are curious to develop a solution. They are aware of the principals of physics that effect driving, and therefore road safety. They explore and appreciate the interplay between ancient wisdom and modern science and make informed decisions based on this study. They strive to lead balanced lives in harmony with the natural world.

Technology
Students are computer literate and comfortable with the latest technology and can effectively interact, communicate, collaborate, problem solve, and access information. They are discerning consumers able to evaluate the authenticity and validity of web-based information and are not manipulated by advertising and media messages. They understand how and why things work with a special focus on appropriate technology.

Social Studies
Students explore how societies and the world function and how they themselves can participate and take action as critical, informed, and responsible citizens.

Health & Physical Education
Students will make informed choices that positively affect the health, safety, and well-being of self and others. They understand how the body functions and how it heals, and how to optimize wellness. They have a collection of useful interpersonal skills and a developed awareness of the mind-body connection.

"We have learned to appreciate the meaninglessness of conventional straight-lacing of subjects."

Pawan Kumar Gupta
Society for Integrated Development of Himalayas

Official Languages

The Druk 3020 Curriculum will be taught in English. However, a creative and experienced teacher can easily adapt the lessons to native languages. This would necessitate some translation of resource materials or selection of new materials in the native language.

While there is no formula that will guarantee learning for every student in every context, there is extensive, well-documented evidence about the kinds of teaching approaches that consistently have a positive impact on student learning.

Evidence tells us that students learn best when lessons are:

- **Integrated**: An integrated program makes connections across traditionally compartmentalized academic disciplines. Lessons organized around broad themes allow in-depth inquiry into core concepts. Students work to answer larger essential questions that provide an important framework for their learning.
- **Inquiry Based**: Students are engaged in individual and collaborative class activities that help them actively pose questions, investigate, solve problems, and draw conclusions about the world around them. As independent thinkers, students become researchers, writers, videographers, and activists rather than passive receivers of textbook content.
- **Holistic**: Holistic lessons ask students to examine where things come from and where they end up (particularly everyday objects) as a way of sharpening critical and analytical thinking and reasoning. They ask students to investigate issues and challenges in their communities, to analyze causes, and to suggest solutions that can be shared and applied.

And students learn best when teachers:

- **Create a supportive learning environment:** A supportive environment is one in which students feel accepted, enjoy positive relationships with their classmates and teachers, and are able to be active, visible members of the learning community. It reinforces positive behaviour.
- **Encourage reflective thought and action**: Students learn most effectively when teachers give them an opportunity to stand back from information and ideas and develop the skills to contemplate the material objectively. Reflective learners assimilate new information, relate it to what they already know, adapt it for their own purposes, and translate thought into action.
- **Enhance relevance:** Students learn most effectively when they feel connected to the material presented. Why should they care? Teachers can help them understand why they are learning and how to apply that learning to their lives.
- **Facilitate shared learning:** When teachers ask students to work together, learning becomes social, cooperative and collaborative. By sharing what they have learned, students reinforce their own understanding of the subject matter and develop a greater sense of ownership of the material.

Some Practical Advice for Teachers:

- Get to know your students and help your students get to know and respect each other. Have the class design their own “Code of Conduct”. Make time for one-on-one sessions.
- Catch kids being good.
- Provide tangible rewards and establish reward systems such as week end raffles.
- Use poetry, and art to integrate reflection time into your already established routines. For example if the students have read an article about poverty, give them some magazines and let them make a collage that reflects what they have understood.
- Use reflective questions: For example during a unit on waste management, ask the students to sit in two circles with the inside circle facing out and the outside student facing in. Sitting directly across from each other students have a chance to answer a facilitated question such as: *what sacrifices would you make to have a plastic free monastery*?
- Don’t assume that students will come to see connections, keep bringing the subject matter back to them. If you are teaching on fire prevention, have them read about the fire in Bumthang, ask them if they have any friends who were affected. Have them write a list of things they would be most afraid of losing if their was a fire.
- After reading an article, have students partner up and share two questions and two understandings they took from the article.
- Have students work in a group of four to design a greenhouse either for their school or a needy group within the community. Have them figure out placement, construction, material costs, upkeep.

To teach in a holistic, integrated, and inquiry-based manner requires certain skills on the part of the teacher that must be cultivated. Druk 3020 teachers will be coaching, guiding, and supporting students more, and lecturing less. They will teach by example Their role is a mix of teacher, guide, and facilitator. They are teaching and modeling skills, strategies, and attitudes; guiding students through the inquiry learning process; and facilitating learning activities and discussions.

Best Practice Reminders

10 quick, easy research-based things you can do to improve student learning in your classroom:

1. **Make learning objectives explicit**: Start every class by telling students the purpose of the day's class—what you want them to know, understand, or be able to do by the end of class. Write the objective on the board, have them write it in their notebooks, and/or discuss it as a class.
2. **Bundle new learning:** Brain research shows that the adolescent brain can handle 12-15 minutes of direct instruction of new content. Then they need time to think about it, apply it, or see examples.
3. **Allow movement:** We've known for decades that movement not only improves our ability to learn, but also helps keep us attentive and engaged. Build movement, however brief, into your daily plan. Consider having students switch seats or stand and stretch, or just "mingle" for a few minutes between activities. If you want students to discuss a concept or question, why not have them do this while standing and moving around?
4. **Check for understanding often**: Conduct quick written or verbal checks to see what they have understood or can now do based on your lesson. Take the last 5 minutes of class to revisit the objectives you made explicit at the beginning of class—did they understand what you hoped they would? Make sure to use this input to plan your next class.
5. **Offer read aloud options**: When introducing information or sharing work through reading, provide opportunities for students to read along silently while listening to a teacher read, or have them take turns reading aloud. Both options help improve vocabulary, fluency, and reading rate.
6. **Make learning active**: Remember, the one doing is the one learning. Reduce TTT (teacher talk time). After you have lectured and/or presented new information, allow the students to actively demonstrate what they have learned. For example, rather than teach about zero waste and composting theoretically, the students can implement those measures in the school or monastery. Active learning takes more time, but the outcome is long-lasting.
7. **Be thoughtful about homework**: Homework may not always be possible, but if there is time, it's a good way to teach students to think for themselves and work alone. Homework should not require new learning, it should be used to reinforce, practice, prepare for, or extend learning.
8. **Let students build the problem:** Encourage student intuition. Let them feel, imagine, do and share. Ask them the shortest questions and let them take the lead. Sometimes it is better to be less "helpful."
9. **Use multimedia:** If used properly, cameras, flip videos, the Internet, and other media help make learning more engaging and can produce results that are more easily shared outside the classroom environment.
10. **Expect greatness**: All students are capable of meeting or exceeding high expectations, each in their own unique ways. Some may excel scholastically, others artistically or musically, others through manual dexterity. We may need to provide scaffolding for some students, and some may need more time or different pathways than others to get there, but all students can do it. Expect greatness from them, and then help them achieve it.

The Holistic Approach

Joining "head, heart, hands." When introducing new material try to frame it so that students can relate it to their lives on many levels. Inspire them to contemplate how it pertains to:

- my inner world
- my physical health
- my family
- my class and school
- my immediate environment and the natural world
- my community
- the global community

Modes of Teaching

There are three traditional modes of teaching, all of which are valid and effective, but it's good to check in and make sure your class time has a balance of the three:

- Transitional – *Hearing.* Information passed from the teacher to the students through lecturing.
- Transactional – *Contemplating*. Students interact with the material, develop questions, explore relationships to other subjects, reflect on ways in which it is meaningful to their lives.
- Transformational – *Meditating*. Students are thoroughly engaged, they apply the learning to develop solutions and share those solutions. The result is genuine self-transformation.

Who Will Teach the 3020 Curriculum?

Mentoring is an essential aspect of the Samdrup Jongkhar Initiative and will be incorporated in the implementation of the Druk 3020 Curriculum. Each unit will be taught in tandem by two teachers, one Bhutanese, and one native-English speaking education professional with progressive education experience. Druk 3020 Teacher training will be conducted in Bhutan in 2012 with additional reflection and review sessions planned for teachers every six months. This training will be shared with any and all teachers in Bhutan who wish to expand their range of teaching skills. From this pool we will select the teachers for the pilot project. Priority will be given teachers who choose to be in Samdrup Jongkhar, rather than those who have simply been posted there. We are looking for teachers with a passion for their profession and a sense that they have something authentic to share with their students—teachers who "embody" the principles and values we seek to embed in our educational system. After all, Bhutan is built on a legacy of master to disciple transmission of wisdom and we wish to follow that example.

"Skilled instructors teach their students to make the finer distinctions between 'education' and 'literacy'; between 'knowing' and 'assuming'; between 'knowledge' or 'understanding' and 'skill'; between 'meaning' and 'word'. This process is primarily dependent on the ability, attitude, sensitivity and enthusiasm of the teacher. There can be no standardisation of this process. For creative teachers this can be a boon; the attempt is to take the student from the known to the unknown. While doing this we acknowledge what the student already knows and we bring the school closer to the student's reality."
Pawan Kumar Gupta
Society for Integrated Development of Himalayas

Assessment in the classroom is the gathering of evidence of student learning and a tool that can inform and encourage student development. Effective assessment provides evidence of student performance relative to content. It gives teachers and students insight into student errors, gaps in learning, and misconceptions. Assessment ensures that teaching and learning are continually adjusted to improve individual student performance and the instructional program.

The Druk 3020 Curriculum is committed to a no fail assessment system that is not tied to standardized tests. It recognizes that every student has a unique contribution to the world – some special talent and capacity. Some might be intellectual, some might be skilled manually, some might have artistic talents, some might be kind and generous offering emotional support. There are ways to recognize, acknowledge, and appreciate each student's contribution through a broader assessment system. This broader assessment system will include a hybrid of conventional summative measures of academic progress (e.g. tests) and more formative holistic measures (e.g. observation, group projects, self-assessment, and group reflection).

Characteristics of Good Assessment

1. **It doesn't matter when or how students learn it, as long as they learn.** A student's assessment should reflect his or her current understanding of the material, not their understanding at some other fixed point in the process.
2. **Allows for multiple paths to demonstrate understanding.** Students should be given the opportunity to express their understanding in various ways (written and verbal tests, video, art, presentations, etc).
3. **Inspires remediation of skills.** Instead of comprehensive tests, assign separate tests that can be targeted and remediated individually. Students will put effort into improving their skills if the potential for success is made apparent.
4. **Asks students not simply to regurgitate but to construct meaning.** Knowing the facts is important and has value but applying and connecting concepts across lessons, units, and disciplines brings meaning to content, demonstrates the interconnected nature of reality, ensures that learning is internalized, and supports life-long learning.
5. **Allows students to engage in real-world tasks.** Students demonstrate meaningful application of essential knowledge, understandings, and skills. As in the working world, "in order to do this job you need to know, understand, and be able to do the following."

"Everything that a student says and does is a potential source of assessment data. Assessment should be an ongoing process, conducted in flexible but distinct stages, and it should maximize opportunities for each student to open the widest possible window on his or her learning." --Carol Ann Tomlinson

"Passive compliance is rewarded in the kind of drills and skills instruction driven by high stakes tests. Future leaders need instead to be active participants co-creating their learning experiences around global issues that lend real-world relevance to their schooling. Technology is a critical facet of this interconnectedness and should be recognized and embraced as the paradigm shifter that it is."
Juliette La Montagne
The Learning Loam

Teaching secular subjects in a monastery requires certain understanding, sensitivity, and respect for the unique culture and tradition of the monastic environment. Teaching monks can be a great pleasure and inspiration; they are often very appreciative and grateful for the support lay teachers provide. But there are some things to be aware of while teaching in this unique environment.

The monks regard lay teachers in the monastery with a high level of esteem. They are afforded a privileged status in the monastery hierarchy unlike the regard teachers are often given in western schools. In the light of this high level of respect it is important teachers conduct themselves with this in mind; sensitive to the influence they have on their students and other residents of the monastery. Their conduct needs to be in accordance with, and causing no disturbance to, the resident monks.

In particular, teachers are encouraged to work on the principle that they should exhort themselves to do what should be done and abstain from what should not, rather than wait for someone else's exhortation.

Students and teachers in the computer lab at Dzongsar Chokyi Lodro Institute in Chauntra, Himachal Pradesh, India.

Some suggestions:

- Refrain from bringing outsiders into the monastery, especially at odd hours.
- Generally the right hand is used for giving or receiving anything, or use both hands, but never just the left. Likewise, the right side of the body is considered more respectful so when you are walking around the outside of temples, stupas, holy people, etc, always try to go clockwise. If you are walking with someone of great esteem it's best to stay to their left, never directly behind or in front.
- Keep an orderly and modest standard of dress in class and in the monastery grounds.
- Before taking photos, ask monks for permission and respect their decision.
- It is considered impolite to point your feet at a person, shrine, or religious object. In general it's good to be careful where your shoes and feet are going. Similarly, it is considered impolite to point with a finger at a person or religious object. Generally it is better to use an upturned palm pointing with all fingers together.
- Be aware that there are hierarchies within the monastery. Lower ranking students could be shy and uncomfortable speaking in front of elders. And elders may avoid questions rather than lose face and make a mistake. Monks will therefore need lots of encouragement to 'speak up' and ask and answer questions.
- Homework may not be possible depending on the rigorous monastic schedule, but if possible it's a good way to teach the monks to think for themselves and work alone.
- Since learning by memorization is a strong suit for monks, which is cultivated by their dharma studies, they will feel comfortable if it can be incorporated into the class creatively.
- Once students feel comfortable with the teacher, role play is great to break up the class. All forms of acting are fun and a great way to learn. However depending on the monastic rules, singing and dancing activities are best avoided unless the monks are very young.
- Drawing, painting, looking at pictures from magazines/books, and a variety of games can make learning fun, but such aids should be respectful of monastic norms.
- Never speak in pigeon English. Just speak normally, but a bit slower, and repeat as needed.
- For women, dress conservatively, don't touch the monks, and maybe expect some distrust in the beginning.
- The technical limitations of power cuts, lack of technical support, and language barriers are challenging for our western, organised, linear minds, and coming from a world where most things by and large work and can be timetabled with some confidence.
- Planning and communication about what's happening in the monastery are not always clear. Classes can be cancelled with very little, if any, notice; students can be unexpectedly taken out of class to do other monastery work; and the overall timetable for the monastery can be fluid. It requires a lot of flexibility and willingness to be happy not knowing what is going to happen in detail. So be aware classes probably won't follow any kind of strict schedule and can be cancelled without warning for pujas etc. The phrase 'dancing on the shifting carpet' may be useful to remember.
- A good sense of humour and loads of patience are essential.
- The food provided in the monastery is usually adequate for nutritional purposes but by western standards, is limited and without the variety we have come to expect. Access to supplementary food can be difficult with monasteries often located some distance from large urban centres where a wider range of food can be purchased. If the food does not meet your needs, do not complain, but simply go about finding your own solutions.
- Exchanging US dollars, travellers cheques, or other currency can sometimes be a challenge. Be sure to bring bills in large currency that are freshly minted with no folds or rips. Do not expect to be able to use credit cards.
- Science can stray into dangerous areas and has to be handled with care to avoid confusion.

Cadinchey – Thank you (Bhutan).

Chapsang – Toilet. Also **sangchod** (Tibetan). the word comes from the word sang-wa which translates to secret. Secret business or work.

Dasho – (Bhutan) A high ranking officer in the government. Traditionally, commoners wear white scrafs, dashos wear red, ministers wear orange and the kings wear yellow. The colored scarves are awarded only by the King. When a person gets the rank of Dasho, he is given the red scarf by the King together with a sword. It is similar to being 'knighted' in the English tradition.

Dresi – Saffron rice with raisins and nuts served on special occasions.

Druk – Directly translates to Dragon. Tsangpa Gyare Yeshe Dorji (1161-1211), is said to have heard thunder when he founded the land where he was to build his seat. He said that it was the dragons who were flying through the skies to welcome him. When Bhutan was founded by Zhabdrung Nawang Namgyel, he decided to name Bhutan as Druk Yul (Land of the Dragon).

Drupchen – Translates to "great accumulation". A puja that goes on 24 hrs a day for a week or 10 days.

Dzong – Literally “castle”, which in Bhutanese context is an administrative center. A **dzongdag** (from dzong and dag meaning owner/boss) is the head of administrative offices,equivalent to governors.

Dzongkhag – Municipality, area under the administration of a “Dzong”.

Gegen – Teacher in Tibetan, teachers are also called **Genlak**. Gegen and **Genlak** can be teachers in both the monk body and lay teachers who teach in regular schools. Western Bhutanese (Dzongkha-pas) call their teachers **Loeboe** and **Lopon**. **Dorje Lopon** is a title given to high-level monks who preside over tantric rituals.

Gelong – A person who has taken the full set of vows of monkhood, he is considered a full monk. The monks usually take different set of vows at different stages. They can take the full gelong vows only when they reach adulthood from an assembly of monks – headed by a senior monk - who hold those full vows themselves.

Gewog – Group of gewogs (districts) make up a dzongkhag (state).

Gomchen – Lay practitioners who are educated in Buddhist sciences and practices, but are not ordained. Gomchen can marry and have children. They have numerous responsibilities in the village., and usually wear robes that are simlar to the *gho* (Bhutanese men's dress) but will wear the yogi’s red and white shawl. The word literally means “great meditator”.

Gompa – Monastery. Is a place of retreat or mediation.

Gonda – Sorry.

Kata (kadar) – white scarf offered as a way of greeting dignitaries and teachers.

Khala – Tibetan for food. Kha- mouth and La- hand. Bhutanese will say **tho** for food, which means cooked rice, because Bhutanese cannot call anything food if it does not have rice. For side dishes they will say **momsey**.

Khenpo – Professor or Senior Monk. Someone who in addition to receiving the highest academic degree is selected as head of a department of higher learning. A Khenpo is also the person who gives monastic ordination.

Kora – Circumambulation. Buddhists believe neither that good circumstances are bestowed by some higher power, nor that they happen at random. Hence Buddhists are active in numerous ways for the purpose of accumulating merit, the conditions for happiness. Kora is meritorious as it celebrates the awakening of enlightenment as embodied in the object of kora – such as a stupa, monastery, or sacred location.

Kyabje – Lord Refuge, a title for one’s main guru.

Lama – Guru – someone who possesses substantial qualities.

Lhakhang – Temple. Literally house of the sacred.

La rey – Yes (Tibetan). **La ma-rey** - No (Tibetan).

Marchang ceremony – A greeting ceremony that consists of offering mar – butter, and chang – beer.

____-pa - In Tibetan the word "pa" means person. Pa is often added to a word to create the meaning that a person is of that root word, i.e. Druk*pa* means Bhutanese.

Puja – Hindu or Buddhist ceremony or ritual. Can be modest or very elaborate.

Rinpoche – An honorific title, like Reverend, meaning "precious one", that is applied to only very high lama usually only those who have been recognized as an incarnation of a great lama.

Shesa (Zhepsa) – Respect; honorific language.

Stupa – Also called a **Chorten**. A Buddhist structure that celebrates enlightenment, which is why a stupa is an object of vereration, and must be approached with respect, and circumambulated clockwise.

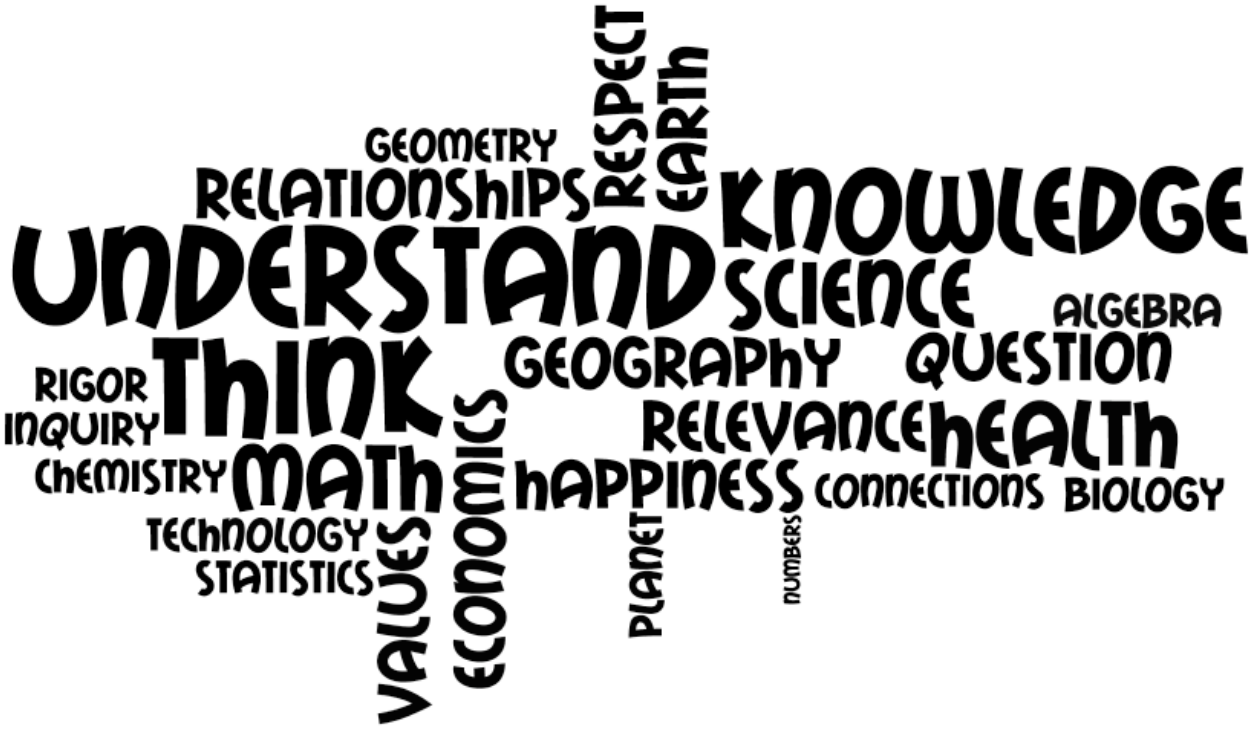
Suja – Honorific for butter tea.

Torma – An elaborate cake or piece of patisserie used in tantric practice. It can represent the principle of awakened reality (the “deity”), the offering itself, and it can also be used to throw – which is literally what torma means. Usually made from *tsampa* (barley flour) and butter.

The Curriculum Map presents an overview of the intended content and outcomes that will be covered at each of the four levels. Unit designers will select relevant content and outcomes from the map to develop integrated, thematic units. The units are built around essential questions that, when answered, result in enduring understandings. This approach ensures that all subjects and key subject outcomes are addressed each year.

The Druk 3020 Curriculum is designed to be delivered in daily three-hour blocks over the course of six five-week units each year. Each day, the first hour will focus on skills training in which students will develop specific literacy, numeracy, and technology skills required for successful completion of the lessons. The skills training will be followed by the two-hour integrated lesson. These lessons will move students towards answering the unit's essential questions and coming to long-lasting understandings.

The skills training requires some standardised textbooks such as the XSeed Curriculum, from which we drew many of the specific outcomes designated for the math and science sections on the map. SJI is presently researching the feasibility of using XSeed or other more effective means of teaching the math and science skills block.



Level 1: Math	Science
In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to understand and use their knowledge and skills in the following areas:	*Students will develop a curiosity in science and use a wider range of science vocabulary, symbols, and conventions. They will develop knowledge and skills, and apply their understandings of science and in the following areas:*
Numbers & Operations	**Life Science**
5 and 6 digit Numbers (up to 999,999) - Place value; Comparisons; Rounding off numbers to tens, hundreds and thousands. Roman Numbers (up to 39)	**Understanding about Life Science -** Human Skeletal and Muscular System; function of types of bones (protection and movement); Voluntary and involuntary muscles; Function of the skeletal & muscular system.
Arithmetic Operations - Adding and subtracting large numbers (4 digits); Multiplying up to 3-digit numbers; Multiplying mentally; Dividing 2 and 3 digit numbers; Multiplication and division as inverse operations.	**Living World and its Classification** - Characteristics of living and non-living; Animals; Flowering and non-flowering plants; Vertebrates and invertebrates. Cortycepts.
Patterns in number sequences - Factors and multiples up to 2 digits; Odd and even (multiples of 2) numbers; Patterns in multiplication and division by 10, 100, 1000 and so on; Doubles and halves. **Money** - Multiple and unit costs; Preparing bills; Exchanging Goods and Services; Money and barter; Modes of Exchange, Demand and Supply; Budgeting; Saving money; Managing a bank account.	**Flowers and Plants** - The form and function of seeds, plants & flowers; Pollination and fertilization; Photosynthesis; Biodiversity; Food chains and food webs; Ecological balance.
Geometry	**Physical Science**
2-D Shapes - polygons, quadrilaterals and circles; Drawing circle with a specific radius and diameter; Relationship between polygons; Quadrilaterals: Rectangles and squares; Giving and following directions in creating shapes; Rotation: whole, half and quarter turns.	**What is Air? -** Properties, Uses, Composition (oxygen and carbon dioxide); Wind; Pollution.
3-D shapes - Prisms, pyramids, cones, cylinders; Faces; Edges; Corners; Identifying faces of 3D shapes; Top, side and bottom view of simple objects; Drawing 3-D objects in 2-D.	**Measurement:** Mass, length and time as preparation for study of energy and motion. Intro to matter. Measuring with bows and arrows.
Symmetry and Tessellation - Examples of symmetry and tessellation using one or two shapes; Creating own designs of symmetry and tessellations; Reflections; Lines of symmetry.	**Fundamentals:** Strong understanding of principles of Force, Work, Power and Energy.
Fractions	**Energy and its forms:** Kinetic and Potential; Hydropower; Converting one form of energy into another; Conservation; Renewable & non renewable sources of energy; Alternative sources of energy; Measuring temperature. Why do I need food?
Equivalent fractions; Improper fractions; comparing and ordering like and unlike fractions; computing with fractions; Arithmetic Operations (addition subtraction of like and unlike fractions); Multiplication of fractions with whole numbers.	**Simple Machines** - When is a lever useful? Principles of work & force; Types, parts and uses of a simple machines. Scissors & pulleys.
Decimals: Converting fractions into decimals and decimals into fractions; addition-subtraction of like and unlike decimals; Multiplication of decimals; Identifying percent of a number.	**Motion, Inertia and Friction** - Types of motion: linear, circular and periodic; Speed; Friction; Inertia; Measuring distance and speed; Distance travelled versus distance gone. **Sound** - Sources; Medium of travel; Pitch, volume, frequency. Musical instruments; Noise Pollution.
Measurement	**Earth and Space Science**
Time: Understanding the 24 hour clock; Conversion between 12 hour and 24 hour clock; computing starting and finishing time; understanding relation between hours and minutes, minutes and seconds.	**Earth, Moon and the Solar System -** Shadows; Rotation and revolution of the Earth; Planets; Lunar Cycle. Address differing views.
Conversion: Using various standard units to convert mass, time, volume, capacity, length etc.	**Climate, weather and seasons** - sunlight, temperature, clouds, wind and rain; Thermometers; weather prediction; Global warming.
Area: Using formulas to calculate area of squares and rectangles, polygons and irregular shapes.	**Experiential Science**
Length: Identifying the various standard units of length (km-mm) to meter.	How a greenhouse works

Social Science	Health	Technology
Students will gain knowledge, skills, and experience to understand the following:	*Students will come to come to understand the connections between physical, mental, emotional health and well-being through a study of the following subjects:*	*Students will use technology throughout their study. They will also explore concepts around how teconology impacts their lives:*
Social Studies	**Physical Health**	**Skills**
The need for a government.	**Food** - Food groups; Introduction to nutrients and their functions; Balanced diet; Cooking methods. **Digestive System:** Types of teeth and their functions; Major organs of the digestive system and their functions; Process of digestion.	Develop basic computer literacy skills (e.g. Word, Excel, etc.).
Political systems: monarchy, democracy, and other forms of government. How the system of government in Bhutan operates and affects people's lives, compared with other systems.	**The Five Senses:** Relate to the five skandas (Buddhist); Taking care of sense organs. How do eyeglasses work?	Understand how to logically organize information using a computer.
The rights and responsibilities of citizenship and avenues for civic engagement (e.g. participation in elections)	**Regular Physical Activity -** Introduction to a range of physical activities and discussion of how varying levels of involvement affect well-being and lifestyle balance. (e.g. Volleyball, lummi sticks, Tai Chi, yoga, pranayama, stretching)	Independently select technological tools to communicate, collaborate, and problem solve.
Geography	**Personal & Mental Health**	**Concepts**
The physical and political geography of Bhutan; Topography; States and capitals; Natural Resources; Unique features of the Dzongkhag and Gewog; Symbols of national identity.	**First Aid** - Basic first aid: Heimlich maneuver, CPR, wound treatment; Investigation and practise of safety procedures and strategies.	Understand concepts of plagiarism and intellectual property, (e.g. downloading movies is actually considered theft)
The role of Buddhism within Bhutanese culture. Understand the cultural origins of the Bhutanese "code of conduct" (e.g. Driglam Namzha).	**Cleanliness and Hygiene -** Dental hygiene and care; Understanding of common diseases and their causes: airborne diseases, waterborne diseases; Establishing a personal health profile.	Develop a curiosity and knowledge about the origins and function of various technological innovations.
How cultural interaction impacts cultures and societies. (e.g. Bollywood, Facebook, etc)	**Interpersonal Skills - introduction to conflict resolution**.	Understand how to use search techniques to find information.
That people move between places and how this has consequences for those people and the places.	**Self Assesment** - How to we identify ourselves and what is our self-worth? How does this influences the way in which we interact other people?	Evaluate web sites and material for validity, accuracy and bias. Explore how "failure" can be used to develop solutions.
Economics	**Buddhism:** The six realms of existence as they relate to personal styles of behaviour. (Need a training to explain this)	
How people's management of resources impacts environmental and social sustainability.	**Meditation** - Investigate the practical benefits of mind training.	**Class Project**
How economic decisions impact people, communities, and nations.	**People and the Environment -** How does living here affect your well-being? What can you do to make it better?	Work with classmates to use technological innovation to address one immediate community issue.
How ideas and actions of people today will significantly impact the lives of future generations.		
How people seek and have sought economic development through business, enterprise, and innovation.		
How the ideas and actions of people in the past have had a significant impact on people's lives.		

LEVEL 2: Math	Science
In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to understand and use their knowledge and skills in the following areas:	*Students will show an increasing awareness of the complexity of working scientifically. They will develop a wider range of science vocabulary, symbols, and conventions, and apply their understandings of science and in the following areas:*
Numbers, Operations & Algebra	**Biology**
Review - Large Numbers up to 8 digits; Operations (addition, subtraction, multiplication and division) with large numbers.	**Body Systems** - Structure and functions of a cell; Differences between plant and animal cells; tissues, organs and systems; Respiratory & Circulatory system
Natural and Whole Numbers - Properties: commutative, associative, distributive, additive identity, multiplicative identity.	**Habitat and Adaptation** - Habitats: Desert, Mountains, Water; Adaptation by plants and animals.
Integers - Negative numbers: Order, representation; Comparison: ordering, addition and subtraction of integers. **Fractions** - Multiplication of fractions (one fraction with another).	**Chemistry** **Water** - Properties and uses of water; Hard and soft water; purification, pollution and conservation water.
Decimals - Review the relation between fractions and decimals.**Percentage** - Conversion between fractions, decimals and percentages. **Ratio and Proportion** - Ratio as comparison and proportion as equality of two quantities.	**Matter** - States of matter - solids, liquids and gases; Molecular structures; Evaporation and condensation; Mixtures, solutions and suspensions; Saturated solutions; Separation of substances. What are bubbles?
Patterns - Rules of divisibility; factorization; Co-primes; HCF and LCM. Why do prime numbers relate to the Internet and the techonology we use?	**Materials** - Wastage and disposal of materials; Journey of waste; 3 R's (Reduce, Reuse, Recycle).
Algebraic Expressions and Equations - Introduction of variables through patterns; Use of variables in formulas and properties done in earlier grades; Expressions and Equations: Solving equations.	**Rocks and Soils -** Uses of rocks; Soils are products of rock cycle; Composition; Types and uses of soils; Life in soil; Soil erosion and pollution.
Geometry	**Planet Earth and beyond**
Patterns & Measurement Review of Basic Concepts and Angles	**Earth systems -** Investigate the processes that shape and change the surface features of Bhutan.
2-D Shapes - Quadrilaterals: trapezium, rhombus, parallelogram, sides, angles; Polygons: Regular and Irregular up to octagons. **3-D Shapes** - Cones and Cylinders, Nets.	**Interacting systems -** Develop an understanding of how the geosphere, hydrosphere, atmosphere, and biosphere interact to cycle carbon around Earth.
Constructions - Perpendicular lines; Angles using compass; Line and angle bisector; Draw or make objects, given their plan, front, and side views.**Symmetry -** Reflection & Tessellations.	**Astronomical systems -** Investigate the interactions between the solar, lunar, and Earth cycles and the effect of these on Earth.
Measurement - Review of basic formulas; Apply the relationships between units in the metric system; Calculate volumes.	**Experiential Science**
Orientation - Describe locations and give directions, using grid references, turns, and points of the compass.	**Magnetism and Electricity -** Magnets and their properties; Electro-magnetism; Making electricity last longer.
Data Handling & Statistical investigation	**Wiring -** basic wiring practicum
Collection and Reporting of Data (testing hypotheses) - Making inferences from collected data. Creating and using double bar graphs using graph paper; Creating and using pie charts.	
Introduction to Probability - Investigate situations that involve elements of chance	
Class project - Planning and conducting investigations using the statistical enquiry cycle:justifying the variables and measures used, managing sources of variation, including through the use of random sampling	
identifying and communicating features in context (trends, relationships between variables, and differences within and between distributions), using multiple displays; Evaluate web sites and material for validity, accuracy and bias.	
making informal inferences about populations from sample data; justifying findings, using displays and measures	
Critical Reasoning - Evaluating statistical reports in the media by relating the displays, statistics, processes, and probabilities used to the claims made.	

Social Science	Health
Students will gain knowledge, skills, and experience to:	*Students will come to come to understand the connections between physical, mental, emotional health and well-being through a study of the following subjects:*
Social studies	**Physical Health**
Understand the civic norms for living together in society, diversity, the different forms of discrimination.	**Nutrition in Food** - Nutrients; Calories; Junk Food; Deficiency Diseases; Journey of food from field to table; Parasites.
Understand how individuals, groups, and institutions work to promote social justice.	**Micro-organisms** - Unicellular and multi-cellular; useful and harmful micro-organisms;Contagious diseases and disease carriers: Mosquito; viral, food, water, air-borne. Tuburculosis; Why do we get a fever?
Understand how cultures adapt and change and that this has consequences for society.	**First Aid** - Review of level one skills.
Compare and contrast major world philosophical and religious beliefs.	**Regular Physical Activity -** Asses own level of fitness and create basic personal fitness plan. Introduction to a wider range of physical activities. How does activity affect well-being and lifestyle balance. Focus on refined motor skills and hand-eye coordination.
History Understand how the causes and consequences of past events that are of significance to Bhutan shape the lives of people and society.	**Personal Development**
Understand the meaning and forms of Heritage (Arts and Crafts, Performing Arts) and the need for conservation of Bhutan's living heritage.	Discusses and practices stress reduction techniques.
Understand how people's perspectives on past events that are of significance to Bhutanese differ.	Begins to develop systematic conflict resolution skills (listening, compromise, collaboration).
Understand the importance of certain inventions and discoveries (fire, the wheel, steel).	Demonstrates ability to give and receive honest feedback.
Geography	**Meditation** - Investigate the practical and scientific benefits of mind training.
The function of maps: The difference between a picture and a map; Different kinds of maps; Elements of a map; Application of mapping skills to create maps; Latitudes and longitudes.	**Technology** *Students will continue to develop the skills and understandings initiated in level one.*
People's interaction with natural and cultural environments and how this interaction has consequences.	Develop basic computer literacy skills (e.g. Word, Excel, Scanning, Photography etc.).
Environments and how they are shaped. Introduction to the idea of rural urban migration, conversion of agricultural land.	Understand how to logically organize information using a computer.
Economics	Independently select technological tools to communicate, collaborate, and problem solve.
The local economy and the economy of immediate institutions (such as the monastery itself).	Develop a curiosity and knowledge about the origins and function of various technological innovations (i.e. what is the Internet?)
How as the result of scarcity, consumers, producers, and government make choices that affect Bhutanese society.	Understand how to use search techniques to find information and to evaluate web sites and material for validity, accuracy and bias.
Interdependence of differenent sectors Bhutanese economy.	Explore how "failure" can be used to develop solutions.
Full Cost Accounting - Acounting and assessing the true benefits and costs of economic activity".	Work with classmates to use technological innovation to address one immediate community issue.
	Understand how peoples' perceptions and acceptance of technology impact future technological developments.

APPENDIX I

GNH Curriculum Development for Dewathang

When a society accepts materialist measures as the sole indicators of its progress, it encourages imbalanced governance that actually threatens the well-being of the people. Working against the tide will take enormous effort, critical thinking, collaboration, innovation, and a bit of bravery. But because Bhutan is a country like no other—a benevolent, carbon neutral kingdom with profound ancient wisdom traditions—it is a fertile ground for such an effort.

Creating a "Laboratory" at Chokyi Gyatso Institute in Dewathang, East Bhutan
In March, 2010, Dzongsar Jamyang Khyentse Rinpoche offered his Chokyi Gyatso Institute for Buddhist Studies in Dewathang, Samdrup Jongkhar, in south-eastern Bhutan, as a laboratory for GNH-based education for the country and beyond. Since GNH principles are so consistent with Buddhist values and traditions, Rinpoche felt that the Institute could now become the first monastery in the country to introduce a full secular curriculum of language, math, science, computer science, and social studies alongside and integrated with the traditional monastic curriculum.

Dewathang's Chökyi Gyatso Institute upholds the tradition and practices of Jamyang Khyentse Wangpo's lineage. Philosophical study includes four years at the elementary level, continuing with higher studies. Just like all shedras, the syllabus contains core texts along with elective texts. To incorporate spiritual practice with the scholastic studies, the institute annually holds six drupchens (extended group practices): Khandro Sangdü, Gyalwa Gyamtso, Pema Tseyi Nyingthik, Vima Ladrup, Miniling Dorsem, and Pama Nyingthik, along with other practices. Regular retreats ranging from a few months to three years are also included in the curriculum for senior students.

The visionary behind the Dewathang Druk 3020 experiment is Dzongsar Khyentse Rinpoche, a Bhutanese meditation master from a great line of masters and yogis, a teacher of Buddhist philosophy, a holder of Tibet's great Jamyang Khyentse Wangpo lineage, and one of the most progressive lamas teaching today. Chokyi Gyatso Institute is one of three monasteries in India, Tibet and Bhutan for which Rinpoche is responsible. With his blessing, we have the freedom and support to experiment and implement a groundbreaking new curriculum. Our hope is that this experiment will bring great benefit to Bhutan and beyond, and further the development and implementation of authentic GNH-based education.

APPENDIX II

Proposed Thematic Units

LEVEL ONE: Basic elements of Being

1) Who Am I? And How Am I?

This unit be the first of the series and will help create a safe and inviting environment for the students, while allowing the teacher to get to know each student individually. The students will answer questions such as: *Where do I come from?* and *How did I get here?,* will evaluate their educational, health, and other objectives, and set personal goals. They will each be given materials to create a personal portfolio in which they keep their work and chart their progress over all 4 levels.

Recommendations: Math and science need to be kept at a very basic level.

2) My Place on This Planet

A unit on place, focusing on local issues, beginning with the monastery itself. Pages can be added to the portfolio about students' home villages, gewogs, and where the dzongkhag fits into the country as a whole. Emphasis on community involvement.

Resources: Healthy Neighborhoods Healthy Kids; Center for Ecoliteracy; GPI research.

Recommendations: Science can include an intro to basic astronomy and ecology; Weather; navigation. History of Bhutan. Intro. to local economy. Intro. to local health issues.

3) What's on my Plate?

A focus on food. Commencement of vegetable garden project. Discussion of real costs, organic farming, with an emphasis on health and nutrition. Journey of waste. Biodiversity. Intro to managing household/business/organization budgets). Bumthang apple juice vs Coke.

Resources: Vandana Shiva; Center for Ecoliteracy book "Big Ideas"; GPI research

Recommendations: Strong science unit focusing on flowers and plants, biology, weather and seasons. Geography-natural resources; population movement. Focus on trade economy. Discussion of salt. Lesson on cashews and their origin as example of process-based holistic approach.

4) Water

A focus on the role of water in our lives including identifying local, national, international resources. Political conflict. Hydropower & kinetic energy. Conservation and pollution. Class project will address rainwater harvesting. Focus on microorganisms, importance of cleanliness and hygiene. Students will think about: *Where does my water come from and where does it go*? Perhaps take a walking tour to local springs. Traditional medicine component on water element.

Resources: Bunker Roy; Story of Bottled Water

Recommendations: Tides, the moon's effect on water, volume and weight of water. Introduction to energy - Look at prayer wheels and how they generate energy; melting and boiling points.

5) Fire and All That is Hot

Continuation of discussion on energy. Fire prevention/community involvement. The real cost of firewood and other energy sources. Measuring temperature. Special focus on the sun and the solar system. Photosynthesis. Solar drying techniques and solar power. Who discovered fire? Bhutanese lore. Why we don't burn plastic. Traditional medicine component on fire element.

6) Air and Space

A focus on properties of air. Discussion of air pollution. How do plants help? Discussion about cigarette smoking/community involvement. Students will ask *What else is out there?* Emphasis on world geography and astronomy. Weather as science. Climate change. Wind power. Traditional medicine component on lung.

Recommendation: kites, prayer flags**,** local air quality, impact of local coal mining and transboundary pollution; changing engine oil (why do we see black fumes coming out the back of trucks? What does that do to the air?)

APPENDIX II (cont'd)

Proposed Thematic Units
LEVEL 2: What Moves Us, What Binds Us

1) Earth and Its Systems
Looking at planet earth: This place we live. Geosphere/biosphere. Earth systems. Interdependence. Interaction of solar and lunar cycles. Personal responsibility, our role in this system. Class project around zero waste: Reduce, Reuse, Recycle. Working with local government to affect change. Vegetable gardening and Composting. Population. Gravity.

Resources: Mini Earth (video), Thanal materials
Recommendations: Look at local mining

2) Trade and Globalization
Students will start by looking at what they are wearing: *Where did you get that shirt?* Discussion of economics, fair trade, real costs, economic interdependence, intro to GNH vs GDP. Environmental impacts of trade and economic activity (acid rain, weather, global warming)

Resources: Story of Stuff, Economics of Happiness, Center for Ecoliteracy materials, Happy Planet Index.
Recommendations: Math - Data handling and statistical investigation, projection, percentages, ratio and proportion.

3) Change/Innovation
How things work. Developing creative thinking skills. Necessity is the mother of invention. History (the wheel, the car, the Internet). Solar engineering.

Recommendation: Field trip to JNP and new Centre for Appropriate Technology

4) Radio/Media Literacy
Developing writing and communication skills. Sharing information and stories. Setting up a web site for the monastery. Blogging. Interviewing local people local histories. How does a camera work? Television?

Recommendations: How does radio work?

5) What Do I Believe and Why?
A unit on world religions and philosophy. Different astrological systems (Chinese, Zodiac, Tibetan) and medicinal studies (alopathic, Chinese, Traditional Bhutanese).

Resources: Professor Samdrong Rinpoche's booklet on world religions. Vandana Shiva.
Recommendations: For math element consider using population studies, timelines (BCE, CE)

6) Gross National Happiness
What is GNH, what are its values, principles, and practices, and how can Bhutan be a model for the rest of the world? Personal responsibility. Projects that can make a difference. Community involvement, political systems, social justice, civic norms, real cost.

Resources: Happy Planet Index, Ecological Footprint sites
Recommendations: Data handling and statistics

Note: Resources and recommendations listed above are intended to be illustrative only, and are by no means comprehensive.

APPENDIX III: Educating for Gross National Happiness

Honourable Prime Minister, Lyonchhen Jigmi Y. Thinley,
Excerpts from opening speech, Educating for GNH workshop,
Thimphu, 7 December, 2009

In this globalised and interconnected world, what happens in any country has meaning for the larger world — for better and, sadly, often for worse. We have learnt the hard way that carbon spewed into the atmosphere in Houston, London, and Sydney will cause flooding and devastation in Tuvalu and Bangladesh, and threaten the livelihood of Inuit and the very survival of polar bears in the Arctic Circle. But equally, and perhaps ever more so, we know that the world is yearning for, and ever more desperately needs, working models of sane and responsible behaviour, and above all of a change in consciousness to which education is surely the key.

At the United Nations recently, I was deeply discouraged to see a world faced with unparalleled challenges being offered only partial, disconnected and piecemeal solutions to this or that particular crisis, whether in energy, food, poverty, resource degradation, water shortage, economic collapse, terrorism, or climate change. What was patently missing—both in the analysis and in the solutions offered—was any understanding of the common disease underlying the symptoms and of the deep malaise that threatens our collective wellbeing and survival. In fact, many of the solutions offered—like financial stimulus packages designed to spur more growth and spending—will not only return us to the dubious temporary comfort of living in debt and delusion, but are the very cause of our most serious present global problems. To address the greed, materialism, and consumerist fallacy that have turned us into mindless economic animals, and are destroying the planet, requires nothing less than a change of consciousness and hence of lifestyle. Education is the key…

⌘

…I am absolutely convinced that there is no more effective, comprehensive, and far-reaching way to put GNH fully into practice and to realize our shared vision and goals—not in a frustratingly piecemeal way but so that our collective national consciousness naturally translates into enlightened action—than to infuse our education system fully and properly with the humane and ecological principles and values of Gross National Happiness. If we want to be of any service to ourselves, let alone to the larger world, there is no better way than to begin here…

⌘

[The] framework—based on the most profound human and ecological values—will transcend politics entirely and withstand any political attempt to dismantle it. We have a word for such indestructibility in our language—dorji—which means diamond-like—and it stems from our ancient teachings on the true and indestructible nature of mind that is characterized by innate wisdom and expressed in natural compassion. Whatever change we make in our educational system, however modest in curriculum or other practical terms, must be characterized by that indestructible wisdom, compassion, and humanity…

⌘

We share the noblest possible aspiration—to see young people graduate from our educational system with a deeply felt care for nature and for each other, steeped in their culture, seeing reality clearly, living in harmony with the natural world and with their neighbours, and acting wisely for the benefit of all beings.

APPENDIX IV: Dzongsar Khyentse Rinpoche Address to the Samdrup Jongkhar Initiative Launch

Excerpt Translated from Tshangla-Lo by Tshewang Dendup

I have been thinking about an initiative like this for some time. In general in Bhutan, lots of changes are taking place. Some of these could be good changes, but it is difficult to comment because what we think is a positive change this year could be considered a negative next year.

Following the wishes of our monarchs, we now have democracy in place, and in line with these developments, it is important for the people to shoulder responsibilities and start fulfilling roles properly. Based on that, we have started the Samdrup Jongkhar Initiative and see what it can bring forth.

Although religion is deeply woven into our lives in Bhutan, I want to make it very clear that the Samdrup Jongkhar Initiative is not a religious entity. I also want to emphasize the apolitical nature of the Samdrup Jongkhar Initiative.

So what then is the Samdrup Jongkhar Initiative?

Bhutan has seen good progress which is due to the collective merit of the people of Bhutan, the blessings of the Three Jewels, and the far-sighted vision of our Kings who have guarded the wellbeing of Bhutanese people for generations. While Bhutan continues to embrace the offerings of the modern world and learns the ways of the modern world, it has done so without losing the essence of our unique culture, our unique thinking and mentality, even the way we sit and eat. All these have not diminished, and the credit for this goes to our monarchs.

Bhutan is a democracy now. So far things have gone well. So why then are we forming the Samdrup Jongkhar Initiative? The English word "initiative" is hard to translate but its meaning includes carrying or shouldering responsibility. It is about carrying our responsibility without the prodding of a cowherd. It is for us and it is for our children. The government has looked after us like a mother after a child. The government has looked after us even beyond the stage that it should, even after the child is now able to ingest solid foods. The government has taken care of us thus far. We are now like 15 and 16 year old teenagers. With democracy in place, Bhutan and her culture, education, environmental preservation and protection, our unique philosophy and psyche, our thinking the caretaker and the custodian of these should not be just the government and the work of a department alone.

Once a child grows up, it should not expect its parents to take care of it further. When the child reaches the age of 15 or 16 or 20 and still expects the parents to look after it, then that is not good. Likewise, the people of Bhutan should now work sincerely in tandem to fulfill the aims of the government and the vision of our King. In doing so, we have to think not only of the present but of the generations to come in the future.

We should not only engage in talk about Gross National Happiness, but also translate it into action, to “walk the talk.” All of us, each one of us, on our own, should start working in line with the philosophy of the government.

The government is doing its job and the hope is that it will continue to do so. But we have to do our bit and not just leave it to the government. After all, it is for us that these actions are being done. We have become so dependent on foreign aid, a mentality like that means that we can never mature and grow up. So being self reliant and realizing our potential, I think these issues will arise in discussions in the upcoming meetings, but I am mentioning this here just to highlight its importance.

APPENDIX IV (cont'd)

In our villages, even though we have enough to feed our children, the trend has set in where our youth want to go to Thimphu and to the urban areas. These days you can no longer say things like “you cannot go” and “you should not go.” Why are our young ones wanting to go to the urban areas? Once they reach the urban areas, if they have no problems living a decent life, it is not a problem at all. But often they end up having no jobs, or if they get jobs, those jobs are not up to their expectations, and then they get exasperated and land up in a situation where they feel ashamed to go back to their homes and end up abusing drugs or drinking alcohol.

How can we stem this flow of our youth to the urban areas? We cannot use force and threat. Within Samdrup Jongkhar and Deothang, what are the things that we can do to create the enabling environment and conditions that will keep our young men and women here? As I say these words, I am reminded of this way of thinking that many of us have a tendency amongst us to think: "We cannot do this. This is un-doable." We should do away with such thinking and abandon such thoughts.

Even if something does not work this year, next year, or in five or six years, if we start our project now, we will have a long term plan, because we have to think long term. We have to think long term. If we start now, if we begin our activities now and start now, then even if we are not able to accomplish our aims during our lifetimes, it is not a problem. If we start this plan and establish it now, then it will bear fruit in our children's lifetime. If we don't do this now, it will be too late later.

In Bhutan, when we build a house, we face labour shortages. We cannot get labourers. There is a lack of skilled workers. Even if we get labourers, we have to contend with the shame factor because such vocations are looked down in our society with the common aspiration to land a white collar job. How can we change this attitude, this thinking?

Deothang and Samdrup Jongkhar are fertile areas and receive abundant rainfall. Yet we get our food and vegetables from outside. How can we be self sufficient and feed ourselves? How to inculcate such thinking? How do we make our people think in those terms and in terms of environmental conservation and ecological awareness and prevention? Education is the key.

With the Samdrup Jongkhar Initiative, the thinking is to go beyond the common and established view, the prevalent view that chanting mantras and counting malas constitutes practice and instead take it beyond those rituals and really integrate spiritual practice. So the Samdrup Jongkhar Initiative will look at how to integrate religious practice and go beyond the chanting and counting of malas. And with this kind of initiative, we will work with all of us united in such thoughts.

Center for Ecoliteracy, ed. *Big Ideas: Linking Food, Culture, Health, and the Environment*. Berkeley, CA, USA: Learning in the Real World, 2008. Print.

"Curriculum and Instruction." *CSSU Framework*. Chittenden South Supervisory Union. Web. 20 Feb. 2011. <http://www2.cssu.org/20081092884419610/site/default.asp>.

Educating for GNH Workshop. Paro, Bhutan, 2010. Print.

"Guidelines and Instruction." *Ministry of Education*. Ministry of Education Bhutan. Web. 14 Feb. 2011. <http://www.education.gov.bt/index.htm>.

Khyentse, Dzongsar Jamyang. "Many Questions, Few Answers." *Kuensel* [Thimphu, Bhutan] 9 May 2010. Print.

Mahajan, Jyoti, Pooja Sukhpal, Monkia Udit Patel, Amarjit Kaur, and Punam Sharma. *XSEED Student Workbooks: Idiscover*. Gurgaon, India: IDiscoveri Education, 2009. Print.

Meuller, Jon. "What Is Authentic Assessment?" *Authentic Assessment Toolbox*. North Central College, 2011. Web. 27 Jan. 2011. <jonathan.mueller.faculty.noctrl.edu/toolbox/whatisit.htm#traditional>.

The New Zealand Curriculum. Wellington, New Zealand: Learning Media Limited, 2007. Print.

Royal Education Council. *Bhutan's Annual Status of Student Learning*. Thimphu, Bhutan: Educational Initiatives Pvt., 2009. Print.

Sleeter, Christine. *Un-Standardizing Curriculum: Multicultural Teaching in the Standards-based Classroom*. Teachers College, 2005. Print.

Stone, Michael K. *Smart By Nature: Schooling for Sustainability*. Healdsburg, CA, USA: Watershed Media, 2009. Print.

"Syllabus." *Department of Curriculum and Research Development*. Department of Curriculum and Research Development, 2011. Web. 7 Feb. 2011. <http://www.curriculum.bt/>.

Tillman, Tiffany. *Healthy Neighborhoods Healthy Kids Guide*. Shelburne, VT, USA: Shelburne Farms, 2007. Web.

Ura, Dasho Karma. *A Proposal for GNH Value Education in Schools*. Thimphu, Bhutan: Gross National Happiness Commission, 2009. Print.