NATIONAL PAYMENT SWITCH (NPS)

Operating Rules
Retail Payment Switch

(including Retail Payment System)

Ver 1.1

(Approved by PSD-NRB vide Letter Ref. No. PSD/Policy 04/41/078/79, dated 17th Kartik 2078)

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Abbreviations and General Definitions

Abbreviations

1. "NRB" refers to Nepal Rastra Bank, the Central Bank of Nepal.
2. "BFIs" refers to Banks and Financial Institutions.
3. "PSP" refers to Payment Service Providers.
4. "PSO" refers to Payment System Operators.
5. "NCHL" refers to Nepal Clearing House Ltd., which is licensed by NRB as PSO for operating as a clearing house.
6. "NCHL-IPS" refers to Interbank Payment System operated by NCHL.
7. "NCHL-ECC" refers to Electronic Cheque Clearing System operated by NCHL.
8. "NPS" refers to National Payment Switch.
9. "CIPS" refers to *connect*IPS e-payment system operated by NCHL.
10. "RPS" refers to real-time Retail Payment Switch implemented by NCHL as part of the NPS.
11. "SGF" refers to Settlement Guarantee Fund.
12. "APIs" refers to Application Programming Interfaces.
13. "CBS" refers to Core Banking System.

General Definitions

1. "Direct Members" or "Participating BFIs" refer to the member BFIs who have subscribed for participating in *connect*IPS e-payment system and also contributed in the SGF for participation in the system in which transactions are backed by SGF.
2. "Indirect/Technical members" refer to non-bank financial institutions or Government of Nepal institutions or large corporates who have subscribed for participating in the system operated by NCHL that have direct communication to send and receive transactions to NCHL. The settlement of their financial obligations are done through their direct member BFI.
3. "*connect*IPS e-Payment System" or "*connect*IPS System" refers to faster payment system established by NCHL as a single payments platform to allow the banks' customers for fund transfer and service payments from various channels. As part of National Payment Switch, it has now been disintegrated into real-time Retail Payment Switch (RPS) and the existing channels of the system including mobile App, web application, gateway and APIs. RPS has been scaled up and enhanced to incorporate additional instruments and use cases being part of the National Payment Switch, where as the existing channel will continue to be identified as *connect*IPS or *connect*IPS System.
4. "Retail Payment Switch" or "*connect*IPS Switch" or RPS Switch refers to the real-time retail switch, earlier part of the *connect*IPS e-Payment System for routing, switching and processing of the financial transactions between the member participants and generates net clearing position for clearing & settlement.
5. "*connect*IPS Service" refers to the electronic payments, transfer and collection services provided by the members to its Customers, based on the Payment Instruction, through channels of *connect*IPS System and as per the enrollment process.
6. "NCHL-ECC" refers to Electronic Cheque Clearing system for clearing and settlement of paper based instruments.
7. "NCHL-IPS" refers to Interbank Payment system for clearing and settlement of instruction based instruments.
8. "ODFI" refers to Originating Depository Financial Institution which is also referred to as Instructing Institution that originates a financial transaction.
9. "RDFI" refers to Receiving Depository Financial Institution which is also referred to as Instructed Institution that receives a financial transaction.
10. "SGF" refers to Settlement Guarantee Fund created by contribution of member BFIs and NCHL to mitigate the Default Risk and Settlement Risk for NCP settlement of the transactions processed through Retail Payment Switch.

11. "Reversal" or "Refund" refers to refund of already accepted and settled transaction and initiated by the crediting member. There may be additional rules or procecure for such Reversal or Refund.

12. "Return" refers to transaction rejected in the system by receiving member.

13. "Net Clearing Position" (NCP) represents the financial position for each member at the closure of each clearing session. The NCP might be net debit or credit, and it is calculated on a multilateral basis.

14. "Net Debit Position" refers to a member's negative balance after having summed up the value of all transactions related to the member in any particular system or category purpose/payment at any particular point of time.

15. "Net Credit Position" refers to a member's positive balance after having summed up the value of all transactions related to the member in any particular system or category purpose/payment at any particular point of time.

16. "Debit Cap" refers to the cumulative net debit position limit provided to member BFIs for the settlement position in each clearing session of the system.

17. "Account(s)" refers to the bank account(s) held and maintained with the BFIs and linked to a *connect*IPS user or wallet accounts of member PSPs used for fund transfer and payment services.

18. "User/ Customer" refers to the customer of the BFIs or the PSPs availing *connect*IPS services.

19. "Creditor(s)/Merchant(s)" refers to entity that provides goods or services in exchange of payment through *connect*IPS system.

20. "Bank" or "BFIs" refers to banks and financial institutions (BFIs) licensed by NRB who can enroll within *connect*IPS System and Retail Payment Switch as Direct Members. They are allowed to enroll Customers and acquire Creditors/ Merchants. They provide payment (credit/debit) services to the Customers and Creditors/ Merchants and provide settlement for other members.

21. "Debtor Bank" refers to the BFI in which account is debited.

22. "Creditor Bank" refers to the BFI in which account is credited.

23. "PSP" refers to the Payment Service Provider who can enroll within *connect*IPS System and Retail Payment Switchas Technical Members through member BFIs.

24. "PSO" refers to the Payment System Operator who can enroll within the *connect*IPS System and Retail Payment Switch as Technical Members to extend *connect*IPS services to their participants through member BFIs.

25. "Payment Instruction" refers to an instruction issued by a customer in writing or transmitted electronically to its BFI or PSP either through *connect*IPS channels including internet, mobile application, short message service (SMS) or unstructured supplementary service data (USSD) or through such other means/ interfaces as provided by NCHL, to effect a payment or transfer for the amount by debiting Account(s) of a customer for credit to the designated account of a Creditor/ Merchant or a designated beneficiary.

26. "Username" refers to the user identification in one of the channels of *connect*IPS system.

27. "Password" refers to the password against Username for identifying the user.

28. "OTP/ One Time Password" refers to a unique and time-sensitive password used as second layer of security in the channels of *connect*IPS System. Such OTP will be sent to the user in its registered mobile number and email ID via SMS/Email and shall be valid for specified time only.

29. "Security Credential" refers to the combination of user's username, password and/or OTP and/or alternate mechanism used for authentication of the user or authorization of a login and transactions, security questions, etc.

30. "On-Us" refers to a payment transaction from one account to another account of the same bank.

31. "Off-Us" refers to a payment transaction from one account to another account of different banks.

1. Introduction

1.1. Background

As per the mandate of Nepal Rastra Bank "*to develop a secure, healthy and efficient system of payments*", it is required to implement national payment and settlement systems in Nepal.

Implementation of nationwide electronic image based cheque clearing (NCHL-ECC) system and interbank payment system (NCHL-IPS), *connect*IPS e-Payment System and Real-Time Gross Settlement (RTGS) were major transition in the payment systems of Nepal. *connect*IPS e-Payment System was implemented and in operation as a faster payment system as per NRB approval, Ref. No. NRB/PSD/9/30/074/75 dated 19th Chaitra 2074. And now, in process of extending the payment systems in Nepal and as part of the National Payment Switch - NPS (implementation as per NRB approval letter Ref. No. PSD/11/6/077/78, dated 19th Kartik 2077), it is required to scale-up the existing *connect*IPS e-Payment System for segregating the retail switch and its alternate channels that are being used by the customers and Creditors/Merchants of the members and the system operated by NCHL, as Clearing House, to initiate and process electronic payment transactions directly from/ to the bank accounts or stored value instruments. .

1.2. Retail Payment System

*connect*IPS System wasis a faster payment system established by NCHL as a single payments platform to allow real-time retail fund transfer and service payments from various channels. It includes retail switch and multiple channels or instruments like mobile App, web applications, gateway and APIs to initiate and process transactions directly from bank accounts thereby integrating the system with the internal systems of its member. The system has been implemented by NCHL as *connect*IPS e-Payment System or *connect*IPS System to support transactions initiation from alternate channels and now has been scaled-up to segregate the *connect*IPS Switch as real-time Retail Payment Switch being part of the National Payment Switch. The existing channels will continue to be identified as *connect*IPS or *connect*IPS System, and collectively with retail payment switch will be called as Retail Payment System.

The Retail Payment Switch provides a switching mechanism to initiate and process real-time retail payments between the member BFIs. It also provides integration mechanism for the members to process their outward and inward transactions. The underlying channels or instruments allow the customers and merchants of the members for handling online payments.

A payment transaction shall be initiated by a payer customer and routed through the Originating Depository Financial Institution (ODFI) and transferred electronically for exchange and clearing, via secured communication channel to the Receiving Depository Financial Institution (RDFI) for necessary crediting at the receiver's or Creditor's/Merchant's bank account. However, in case of pull (direct debit) transactions, it will be initiated by the payee customer electronically either for each transaction or based on pre-approved authorization of payee customer. The debit leg of the transaction is processed on immediate basis at the debtor bank on confirmation of availability of fund and account status, either by the system or by the member itself. The credit leg of the transaction is also processed on immediate basis with option of immediate credit or on deferred basis with settlement guaranteed. The final settlement between the BFIs shall be done on deferred net basis through RTGS system.

1.3. Objectives of Retail Payment System

The objective of the real-time retail payment system as part of the NPS is to establish a single platform for initiating, processing and clearing & settlement of the non-card digital payment transactions such that it provides mechanism to:

- Achieve a safe and efficient faster payment system for development of non-card digital payment instruments including but not limited to direct credit and direct debit (pull) payment transactions with immediate realization of fund and provisions of multiple net settlements at RTGS.

- Provide channel platforms and interfaces to the participating members for extending to their customers to provide alternate channels for payment initiation and processing.

1.4. Legal and Regulatory Framework

This Operating Rules is established to define the procedure for operation of real-time retail payment system including Retail Payment Switch as part of the National Payment Switch (NPS). The legal authority of the Operating Rules shall be Nepal Rastra Bank Act 2058 BS (2002) as per the provisions of Section 5, Sub Section 1 (i) and the prevailing Payment & Settlement Act 2075 and Payment & Settlement Bylaw 2077. This Operating Rules shall be the regulatory framework that must be followed by all the concerned parties including NRB, NCHL and the Members, which shall be effective from the day of its issuance.

The approvals and regulations already issued by NRB for the operations of *connect*IPS e-Payment System with regards to its extended channels and use cases shall also be valid and binding for all the stakeholders and shall be read as part of this Operating Rules. In order to establish interoperability, mitigate risks and monitoring of retail payment systems in Nepal, NRB may additionally instruct and mandate the licensed BFIs, PSPs and/or PSOs to utilize all or some of the use cases of National Payment Switch as may be required.

The Retail Payment Switch, as part of the National Payment Switch (NPS) is implemented and operated by Nepal Clearing House Ltd. (NCHL) as a clearing house, licensed and regulated by NRB as a payment system operator (PSO). Any modification in this Operating Rules shall be amended as per the recommendation of NCHL and upon approval by NRB. The participating members and other relevant stakeholders shall be notified accordingly by NCHL.

2. Operating Rules

This Operating Rules is documented to manage the Retail Payment Switch and its transactions effectively such that a complete business process is understood along with the roles and responsibilities of each participant. The purpose of the Operating Rules is to create and document rules, procedures and standards for the operation of retail payment system including retail payment switch and its channels.

The Operating Rules shall govern the operations and use of the system. It sets the standards for the followings:
- Roles and responsibilities of the participants and the settlement bank.
- Roles and responsibilities of NCHL as the operator.
- Detailed operational rules, procedures and other authoritative information to the participants and relevant parties as to how the system functions in different business situations.

2.1. Currency

Retail payment switch shall provide the processing of payment transactions in Nepalese Rupee (NPR) or any other currency as approved by NRB.

2.2. Threshold

Threshold shall be applied in the system to define maximum amount of payment transaction that can be processed. The thresholds shall be defined and validated automatically by the system as follows.
- System Threshold: This is the maximum limit allowed for a session in retail payment switch.
- Participant Threshold: This is the total net amount limit allowed for each member participant in a specific session. The participant threshold shall be the net debit cap for the participant as per the provision of the Operating Procedure for SGF.

- ▪ Transaction Threshold: This is the per transaction limit allowed for processing in the system for the members, which shall be as follows or as mentioned by NRB for specific cases. This shall be amended as per the prevailing NRB directive.

Transaction Thresholds	On-Us Transaction	Off-Us Transaction
Amount Limit Per Transaction	NPR 10,000,000	NPR 2,000,000

  However, separate limits already specified or to be specified through directives by NRB for Government of Nepal, specific industry/ institution and/or specific channels shall prevail.

- ▪ Channel Specific Threshold: This is the transaction limit applied in the channels or instruments integrated with retail payment switch. Such threshold shall be set by the respective members or the operator as per their internal policy. Various types of thresholds that shall be available in the channels of retail payment system are Amount Limit Per Transaction, Amount Limit Per Day, Amount Limit Per Month, Transaction Count Per Day, Transaction Count Per Month. It shall be less than or equal to the transaction threshold limits specified by NRB for such channels and/or as per specific approvals.

2.3. Response Mode

The transactions shall be immediately responded by both the debtor bank and creditor bank. The transaction shall not be processed unless debit leg is confirmed by the debtor bank. However, the beneficiary account credit shall be either on immediate basis or on deferred net basis depending on type of the transactions and creditor but it shall be SGF backed. The return or refund of transactions shall be handled as exceptional case as per the exception handling provision of this operating rules or as per the Dispute Management Procedure, to be issued separately.

3. Participant Management

3.1. Participant Membership

Direct membership of retail payment switch shall be open to all Banks and Financial Institutions (BFIs) operating in Nepal or any other entity at the discretion of NRB. Indirect and Technical membership shall be open to payment service providers, payment system operators, non-bank financial institutions and large institutions or corporates that are allowed to originate specific purpose transactions.

3.1.1. Direct Member

Direct members shall be banks and financial institutions licensed by Nepal Rastra Bank and operating within Nepal. Direct members shall hold settlement account at NRB to settle in RTGS for the financial obligations to other BFI's. They shall have a direct communication link and be fully integrated with retail payment switch enabling the members to exchange transfer messages with other members. The transaction initiation may be from any of the channels of the system or other alternate channels of the member.

3.1.2. Indirect Member

Indirect members shall be non-bank financial institutions that have a direct communication link and be fully integrated with retail payment switch through NPI enabling the member to exchange transfer messages with other members but do not have settlement account at NRB to settle its financial obligations. Therefore, they shall settle their Net Clearing Position (NCP) through a Direct Member as settlement bank that has an account at NRB. There will be no NCP for an Indirect Member.

3.1.3. Technical Member

Technical Members shall be payment service providers or payment system operators licensed by Nepal Rastra Bank that are allowed to process transactions of their own or on the behalf of their customers. It shall also include Government of Nepal entities, large institutions or corporations that have their own

large number of payments and fund transfer transactions or any other entity as prescribed by NRB. Technical Members shall have direct communication link and be fully integrated with retail payment swich through NPI but do not have settlement account at NRB to settle its financial obligations. Therefore, they shall settle their Net Clearing Position (NCP) through a Direct Member as a settlement bank that has an account at NRB. There will be no NCP for a Technical Member.

3.2. Participant Prerequisites

Following shall be the eligibility criteria and prerequisites for Direct Member.

1. Shall be licensed as bank and financial institution in Nepal.
2. Shall hold an account in NRB or RTGS for settlement.
3. Shall have a direct secured communication link with NCHL and be fully integrated with retail payment switchenabling the member to exchange transfer messages.
4. Shall have implemented inward and outward integration for immediate credit / debit of its accounts. Member at its discretion may use such integration provided by NCHL or implement its own integrations based on the specifiations provided but shall ensure specified end to end turn around time for such real-time payments.
5. Shall maintain uninterrupted and secured host-to-host connectivity with isolated underlying ISO 8583 or ISO 20022 or similar protocol as specified.
6. Shall be a direct participant in the Settlement Guarantee Fund (SGF) as per the Operating Procedure for SGF with necessary settlement arrangement.
7. Shall agree to comply with the terms of this Operating Rules and any other criteria and/or conditions as may be prescribed by NRB and/or NCHL.
8. Shall be able to cover its liabilities and to pay its debts once they fall due, and not be insolvent as defined in accordance with any Insolvency Act applicable to the member.
9. Shall pay the applicable fees and charges to NCHL.

The existing banks and financial institutions who have already entered into membership agreement for participation in the *connect*IPS e-Payment System, prior to the issuance of this Operating Rules, will continue as its Direct Members.

Following shall be the eligibility criteria and prerequisites for Indirect and Technical Member.

1. Shall be a legal entity registered under Nepal Law or licensed institutions in Nepal's jurisdiction.
2. Is allowed to originate specific purpose transactions either for itself or on the behalf of its customers. It shall be the responsibility of such members to obtain any other approval or license, as may be required, to handle transactions on the behalf of its customers.
3. Indirect and Technical Members shall be allowed for specific purpose transactions only.
4. Shall have established a legal agreement with one of the Direct Members, who holds an account in NRB, to act as its settlement bank for settling the Net Clearing Position (NCP).
5. Shall have a direct secured communication link with NCHL and be fully integrated with retail payment switch through National Payments Interface (NPI) enabling the member to exchange transfer messages.
6. Shall agree to provide necessary fund in the Settlement Guarantee Fund (SGF) through its settlement bank and as per the Operating Procedure for SGF.
7. Shall agree to comply with the terms of this Operating Rules and any other criteria and/or conditions as may be prescribed by NRB and/or NCHL.
8. Shall be able to cover its liabilities and to pay its debts once they fall due, and not be insolvent as defined in accordance with any Insolvency Act applicable to the member.
9. Shall pay the applicable fees and charges to NCHL and its Settlement bank, if any.

The existing PSPs, PSOs, non-bank financial institutions, Government/ Semi Government entities, large institutions and similar, which have already entered into membership agreement and onboarded as participants in the *connect*IPS e-Payment System through NPI, prior to the issuance of this Operating Rules, shall continue as its Indirect or Technical Members.

3.3. Participant Agreement

1. Each participant shall sign a membership agreement or amend the main agreement with NCHL to subscribe retail payment system as part of NPS or to sepecfic channels.
2. Indirect and Technical members shall also have an agreement or arrangement with the Direct Member(s) for extending the system and for settlement purpose, which shall be included as part of the Indirect or Technical member agreement.
3. NCHL shall notify to all other concerned participants when new participant is enrolled in the system.

3.4. Participant Suspension

A participant shall be suspended for the following reasons but shall not be limited to:

1. License revoked or declared as problematic by NRB or by any other statutory body.
2. Participant declared itself as insolvent or declared insolvent pursuant to prevailing Insolvency Act.
3. Fails to comply with the terms of this Operating Rules and/or Operating Procedure for SGF.
4. Fails to comply with the terms of the membership agreement.

The suspension shall be immediately effective after being identified by NCHL or being informed to NCHL or as directed by NRB. The participant shall not be able to exchange and process any transaction further. However, the transactions already initiated by a suspended participant, as debtor participant, shall be deemed as accepted. Therefore, the suspended participant shall continue to be liable to NCHL and other participants in respect of all its outstanding obligations and liabilities.

3.5. Participant Resumption

Resumption of a suspended participant in the retail payment switch may happen in case that the reason for suspension has been rectified to the satisfaction of NCHL or as prescribed by NRB.

3.6. Participant Termination

Termination of a participant shall be accomplished when decision for permanent removal is made. The membership of a participant shall be terminated in the system in case the participant satisfies one of the following conditions.

1. Suspended for more than six months due to failure to comply with the terms of this Operating Rules and/or Operating Procedure for SGF.
2. Terminated as per the Operating Procedure for SGF.
3. License revoked by NRB or by any other statutory body authorized to do so.
4. Declared insolvent or participant declared insolvency or similar, or
5. Withdrawal requested by the participant.

Termination of a participant is permanent, where terminated participant will no longer be accessible to retail payment switch, although the participant information will remain for future reference. Once terminated, re-processing shall be necessary for participation.

3.7. Participant Withdrawal

Any participant who would like to withdraw from retail payment switch, as per its business decision, must send an official request ninety (90) days in advance. Once withdrawn, re-processing shall be necessary for participation.

3.8. Participant Identification

Each participant shall be represented on retail payment switch with a unique identification member number (Id), provided by NCHL. Moreover, a unique identification number for each branch shall be provided by the respective participants. However, for existing members of NCHL, identification number of NCHL-ECC and NCHL-IPS will be re-utilized for the system.

3.9. Participant Notification

Upon receipt of an official communication and a member added or suspended or terminated or withdrawn or resumed, NCHL shall notify to all other participants via electronic means.

4. System Architecture

*connect*IPS system is a Retail payment system is operated in a hosted model by NCHL with necessary channels and application programming interface (APIs) opened to the participants through a secured communication link. It consists of real-time Retail Payment Switch (RPS) as core switch, the existing channels of *connect*IPS and NPI as open APIs. The application systems and database of the retail payment switch, channels and components of the participants shall be centrally hosted at NCHL. Participants shall be required to access the centralized servers using web browser or an integration middleware modules or APIs, in order to perform transactions and access information. The debtor customers and creditors (service providers or merchants) shall be owned by the respective members and can initiate the transactions from secured channels. *connect*IPS system has following modules.

4.1. Retail Payment Switch

The Retail Payment Switch is the core switch of the retail payment system that will handle processing of the payment transactions and validations for account debit and/or credit. Host-to-host connection between the participants and NCHL shall be established through an integration with the participants for customer account debit and/or credit. The pre-requisites for such connection shall be published by NCHL separately and the respective banks will share the financial message specification for the integration.

However, option for the participants will also be available to process its debit message by itself from its specific channels. In such case, the participant will have its own middleware component with necessary APIs exposed, such that the retail payment switch will only process the credit leg based on the debit confirmation message. The specifications of such APIs shall be provided by NCHL to such participants. The switch will also process credit message as immediate credit or deferred credit to beneficiary account or alternatively through inward integration provided by NCHL or similar other arrangement of the bank.

4.2. NCHL Central Module

The NCHL Central module is used by NCHL for setup, management and monitoring of the *connect*IPS System. It includes the components related to system parameters, participant management, setups, settlement session management, monitoring and reporting, notifications and alerts for NCHL to manage the system.

4.3. Bank Central Module

The Bank Central Module is a web based component used by the member BFIs for transaction initiation and management of all payment systems. The *connect*IPS users of the direct members (BFIs) can access bank central module to setup its security profiles, user management, limit setup, customer account linking, transaction initiation, monitoring, reporting and creditor/merchant enrollment. The bank central module shall also be used to process return/ reversal transactions that may be required as a result of exceptional handling, reconciliation or as advised by the Creditor/ Merchant, in case of service

not rendered. It shall also allow the BFI users to enroll its creditor/merchant with technical integration being supported by NCHL.

4.4. Retail Modules

Retail Modules are the channels as platform provided to member BFIs for providing to their customers. The customers of BFIs shall access *connect*IPS system through the provided channels, which will be used for initial enrollment, account linking, initiating transaction and reporting. Such channels could be web application, mobile app, payment processor (gateway) or other channels, in which one or multiple accounts could be linked by customers of the BFIs. The linked bank account(s) have to be verified/validated by the respective BFIs for activation and the customer can link, disable or delete linked bank account(s). The customer will be able to select the linked bank account for the payments/transfers, whereas, for transfer using Virtual Payment Address (VPA), i.e. linked mobile number, the credit to the customer will directly be in the pre-defined primary account. Username, password, OTP, PIN and/or other credential will be used as two factor authentication for transaction initiation.

The approvals provided by NRB for connectIPS e-payment system, prior to issuance of this Operating Rules, shall be applicable and valid for the Retail Module of *conect*IPS systems.

4.5. Interfaces

The interfaces of *connect*IPS system are the APIs exposed to the members and other entities to initiate, respond and reporting of the transactions processed in the system. All such APIs shall be exposed through National Payments Interface (NPI) and as per the specifications thereof.

4.6. Creditor/Merchant Module

The creditor or merchant module is used by the creditors/ merchants to manage its operations for needed reporting/ reconciliation and refund. Creditors/ merchants are enrolled in the system by the BFIs with technical supported from NCHL. Creditor will be able to login into the Creditor Module and manage its operations for the needed reporting/ reconciliation and initiate transactions to handle return/refund (full or partial) corresponding to the original payment transactions.

4.7. Archive Module

The transaction data of *connect*IPS system shall be maintained in the Archive Module for at least seven (7) years. The data shall be archived automatically within three (3) months from the *connect*IPS system to the Archive Module, after which the data retrieval shall be done by NCHL upon request from the participating member BFIs.

5. System Operation

5.1. Daily Operation

NCHL shall operate and manage daily operations of retail payment system by:
1. Configuring daily settlement session timings for the participants in the system.
2. Monitoring operations and validation of the presented and/or replied transaction(s).
3. Monitoring and overall management of the transaction life cycle and taking corrective actions and/or decisions appropriately.
4. Ensuring closure of daily settlement sessions and settlement of the processed transactions at NRB's RTGS system.

The main functions and a general workflow of the retail payment system shall be as follows:
1. Channels shall authenticate the user, prior to receiving and/ or processing payment transactions.
2. Process and validate the received transactions against system validations.

3. Record the transactions for netting and settlement purpose at end of the session settlement cycle.
4. Transmit valid transactions to debtor bank for account debit.
5. Transmit transaction (upon confirmation of debit leg) for account credit to creditor bank based on account number or identifiable virtual payment addresss. Such credit could be on immediate basis or on deferred basis based on transaction or product type. Creditor and debtor bank will be same in case of On-Us transactions.
6. Transmit received replies from creditor bank to debtor bank for either acceptance or rejection.
7. Close the clearing session for settlement between creditor bank and debtor bank.
8. Generate Net Clearing Position (NCP) of accepted transactions for each settlement session.
9. Send NCP settlement message to NRB's RTGS for settlement.

The standard response codes of the system are listed under Annexure and other responses shall be passed as received from the participant BFIs.

5.2. Enrollment and Account Linking

The BFIs and other members shall be responsible for enrolling their customers, creditors/merchants and linking their accounts within *connect*IPS system. Such enrollment and linking shall be either directly on the channels provided by the system or alternate channels of the members. The members accessing the system through NPI will also require enrollment of the members and linking of their accounts. Customers of the members after enrollment and linking can initiate transactions from such channels or the member BFIs can initiate transactions on the behalf of their customers using one of the channels (Bank Central Module) provided with the system.

5.2.1. Enrollment and Linking Bank Account(s) in Retail Module

Enrollment of BFI's customers and linking of their bank accounts will be required in the channels provided within the *connect*IPS System only, whereas additional enrollment is not required for transaction initiation from BFI's own channels. Following shall be a high level workflow for enrollment and account linking in the retail channel of the system.

1. BFI's customer can register itself in retail channels of *connect*IPS system by accessing the provided channels/ portal. Such retail channels could be App, Web application or any other channels available and integrated with *connect*IPS system.
2. A minimum details required for registration include customer's preferred username, password, valid mobile number, valid email id, date of birth, security questions, and similar information. Username shall be unique and is directly mapped with the BFI's customer mobile number i.e. same mobile number cannot be mapped to more than one user.
3. A registered user can login in the provided channel/ portal using its username and password.
4. The user is required to do one-time verification of his/her mobile number and email Id to activate the user with an appropriate authentication process associated with registered mobile number and email Id. Mobile number and email Id shall be used for all future verifications (authentication/ authorization), forgot password/username, profile changes, etc.
5. Once verification is completed, the user can link its bank account(s) by entering its bank account details, which will have to be verified/ approved by the respective BFI to activate such linked account. The user can download the linked bank account details and visit its bank/branch for one-time verification. Alternatively, the user can request its bank to link the bank account, who on the behalf of its customer can enter and link the bank account.
6. The BFI shall approve/reject the linked account based on its internal process and its KYC/AML requirements. The bank, at the time of verification, may request for identification of its customer and/or any other document/ proof as may be required.
7. The approved bank account will be activated for the user and can then be used for transaction in the specified channels of the system. A user can link multiple bank accounts of single or multiple BFIs. However, default credits will be in the primary account, identified by the user.

8. The BFIs may also provide alternate mechanism, either extended within the channels of the system or through BFI's own channels to link and self-verify their customer's bank accounts, in which the user will not require to visit the bank/branch. In such cases, additional security controls and authentication mechanism will be added for the user and a standard interface exposed by NCHL, corresponding to which the BFIs may, as per its internal policy, adjust the transaction limit.

9. NCHL shall publish a template of 'Link Bank Account Link Application Form' and a template of 'Terms and Conditions of *connect*IPS system' for the participating BFIs that they can use for their customers.

5.2.2. Creditor/Merchant Enrollment

Enrollment of creditors or merchants within *connect*IPS System will enable creditors/merchants of the BFIs or aggregators to receive payments from any of the channels or customers. Upon enrollment, these will also be available in all the channels of the system including extension through NPI for other members to use. Following shall be a high level workflow for enrollment of creditor/ merchants in the system.

1. BFI shall enroll and own the creditor/merchant and shall complete necessary KYC/AML requirements, as may be required. The BFI shall also ensure that the Creditor/ Merchant is a legal entity registered in Nepal; is allowed to originate such transactions; and has agreed to comply with the terms and conditions of *connect*IPS System.

2. Such creditor/merchant can be enrolled by the member from Bank Central Module or can self register from specific portal, corresponding to which a request may be sent to the member for necessary recording or processing.

3. A separate service agreement or similar arrangement shall be in place between the BFI and its creditor/ merchant. For the purpose of standardizing such arrangement, a template agreement shall be provided by NCHL to its direct members.

4. NCHL shall coordinate with BFI for technical setups of such enrolling creditor/ merchants, which may be online application requiring payment processor (gateway) or API integration or normal payment receiving creditors.

5. BFI shall request and provide necessary information to NCHL (through Form or Bank Central Module) for technical coordination for enrollment, which includes atleast creditor name, bank account details, address, type, application informtion, charge and settlement setup and other interface related details.

6. Based on the details, necessary setups and APIs shall be consumed or exposed to the creditor/merchant by NCHL for needed integration with their application. The technical credentials will be shared with the contact person of the creditor/ merchants as specified by the enrolling BFI.

7. The creditor/merchant shall receive the username and password to access Creditor Module through which it will be able to view its transactions received and also initiate refund/reversals against original transactions, as may be required.

8. A single creditor/merchant can enroll multiple accounts for multiple applications. The creditor/merchant enrolled in the *connect*IPS system shall be enrolled as a global creditor, corresponding to which it will be available to all the participating members, their customers for payment and extended in all channels of NCHL.

9. NCHL shall publish a template of 'Creditor/ Merchant Enrollment Form' and a template of 'Terms and Conditions of *connect*IPS system' for the participating BFIs that they can use for their creditors/ merchants.

5.2.3. Linking Bank Account(s) of Members in API

Enrollment of members and bank account linking will be required for the indirect/ technical members and for the direct members (BFIs) for initiating transactions from their alternate channels. They will be

integrated with *connect*IPS system through APIs (NPI) for transaction initiation and processing. Following shall be a high level workflow for enrollment and account linking in NPI.

1. BFI shall be a settlement bank of such indirect/ technical members and shall complete the necessary KYC/AML requirements, as may be required. The BFI shall also ensure that the member is a legal entity registered in Nepal; is allowed to originate such transactions; and has agreed to comply with the terms and conditions of *connect*IPS system.

2. A separate service agreement or similar arrangement shall be in place between BFI and indirect/technical member along with an account debit authorization for transaction initiated and processed through APIs. A debit athorization shall also be obtained by the BFIs that allows to debit the bank account based on the transaction initiated by the indirect/technical member through APIs. For the purpose of standardizing such arrangement, a template (NPI Enrollment Form and Debit Authorization Details) shall be provided by NCHL to all its members.

3. BFI shall request and provide necessary information to NCHL (through Form or Bank Central Module) for technical coordination for enrollment and whitelisting of the bank accounts.

4. Based on the request of BFI, necessary setups and APIs shall be consumed or exposed to the member by NCHL for needed integration with their application. The technical credentials will be shared with the contact person of the member as specified by the enrolling BFI.

5. Member shall consume the APIs to extend *connect*IPS system in its channels for transaction initiation and processing.

5.2.4. Notification Messages

Event-based notifications like OTP or confirmation message or alert or similar or combination shall be used by *connect*IPS system for initial verification of the user's mobile number, email id; transaction authentication; and changes in user or creditor/merchant details.

5.3.　Transaction Workflow

Following shall be a high level transaction workflow from various modules of *connect*IPS system.

5.3.1. Retail Modules

The users will be able to initiate transactions directly from the provided channels or through creditor/ merchant's application using payment proces. A general transaction flow shall be as follows, subject to modification as per the use cases.

1. A user will enter the related information for payment transaction either on merchant's portal and then redirect to *connect*IPS login credentials. A user may also login into the channels (App, Web) of *connect*IPS system and then enter or select the related fund transfer or payment information.

2. The user will then select its linked bank account from which he/she wishes to make payment.

3. Transaction will be processed only after the verification of second authentication, along with other system validations. Such authentication could be OTP and/or PIN and/or additional credentials.

4. The system will then send an instruction to the debtor bank to debit the customer account and based on the debit response, the merchant's portal will receive a response for further processing or creditor will receive a response/ notification for account credit.

5. The credit on creditor or merchant's account shall be on immediate basis or on a consolidated deferred basis, depending on the type of product and/or the merchant/ creditor.

5.3.2. Bank Central Module

The BFI users will be able to initiate transactions directly from the Bank Central Module of the system. A general transaction flow shall be as follows, subject to modification as per the use cases.

1. BFI will receive, through an appropriate mechanism, an instruction from its customer with related information for fund transfer or payment through *connect*IPS system.

2. Maker user of the BFI will login into the system with his/her login credential and then initiate a transaction based on the customer instruction.
3. The instruction will be sent to BFI's checker user to verify the transaction, after which the customer's account will be debited. The transaction will be processed only after the verification by the checker user, along with other system validations.
4. The system will then initiate a credit instruction to the creditor bank, based on which the merchant or creditor will receive a response/ notification.
5. The credit on creditor/ merchant's account shall be done on immediate basis or on a consolidated deferred basis depending on the type of product and/or merchant/ creditor.

5.3.3. API Interfaces (NPI)

The members integrated through API will be able to initiate and process transactions in *connect*IPS system directly from their systems or channels. A general transaction flow shall be as follows, subject to modification as per the user cases.

1. Member will integrate its system or channels with *connect*IPS system through the APIs (exposed through NPI). The Member will have the necessary controls built within its system for transaction initiation, processing and reporting.
2. A transaction will be initiated from member's system and sent to *connect*IPS system through APIs, which will include all the related information for fund transfer or payment.
3. The system will validate the source, credentials and transactions, after which it will debit the authorized (and whitelisted) bank account of the member.
4. The system will then initiate a credit instruction to the creditor bank, based on which the merchant or creditor will receive a response/ notification.
5. The credit on creditor/ merchant's account shall be done on immediate basis or on a consolidated deferred basis depending on the type of the product and/or the merchant/ creditor.

Any other additional use cases and/or instruments, with underlying transactions processed through *connect*IPS system, will be provided by NCHL through NPI.

5.4. Reconciliation and Exception Handling

A payment instruction either on credit or debit in retail payment switch may fail due to various reasons such as loss of network connectivity, failure of core banking system of BFIs, failure of integration middleware, incorrect beneficiary details or other business or tecnical reasons. Following are the major cases of transaction failure and process for exception handling, some of which will be automated whereas others may require manual intervention by the member BFIs.

1. If a debit instruction has failed due to Time-Out at debtor's bank, such that the system is not able to receive a response, the system shall not process such transaction for credit to the beneficiary account. The sender will receive a transaction failure response and such transaction will not be included in the NCP settlement of the BFIs. In such case, it will be identified by the debtor bank in its reconciliation, which shall be either manually reversed by the debtor bank or automatically reversed in case debit time out auto reversal is enabled by the bank. Debtor bank will be able to view report in the system for such Time-Out failed transaction.
2. In case sender's account is debited but the system is unable to process credit instruction to creditor bank due to any technical reason, the system shall not process the instruction for credit to the beneficiary account. The sender will receive a transaction failure response and such transaction will not be included in the NCP settlement. The system will promptly reverse the debit leg of credit failed transaction for the auto reversal enabled banks or shall be manually reversed where auto reversal is not enabled. Also if auto reversal transaction also failed, bank shall revers such transaction manully after reconciliation from reveral transaction list.

3. In case sender's account is debited but beneficiary account could not be credited due to network/socket time-out at creditor bank, status of the direct credit transaction in retail payment switch shall be 'Debit Accepted' and 'Credit Time-out'. Such transactions shall be marked as deemed success in the system for which NCP shall be generated. In such case, it will be identified by the creditor bank in its reconciliation, which shall be manually credited to its customer account. BFI may implement additional retry controls for auto-credit of such failed credit instruction.

4. In case of a transaction where debit is success and credit is deffered payment and service is already rendered, howerver failed to post the credit deffered payment (CDP) in creditor account such transaction is included in the NCP settlement, then the creditor bank will have to manually proceed for credit based on NCP reconciliation.

5. However, in all cases, the member BFIs (creditor and debtor banks) and creditor/merchant shall ensure that they have reconciled their transactions latest by next business day (T+1). And for all cases, identified by the BFIs or raised by the customer or creditor/merchant, the member BFIs shall resolve the cases and reversal or adjustment made against the original transaction within 2 business days for On-Us (same bank) and within 7 business days for Off-us (different bank), except for the the transactions under dispute.

In order to streamline the exception handling, including procedure for dispute handling, NCHL may issue a separate Dispute Handling Procedure to further detail scenarios of disputes, procedure and handling mechanism including charge backs, as may be required. NCHL may implement Dispute Management System to automate and enforce the dispute handling procedure.

5.5. Debit Cap Management

Debit cap limit shall be defined in the system for each of the participating BFIs as per the Operating Procedure for SGF and the BFIs may assign debit cap to the underlying indirect and technical members to which the BFI is a settlement bank. The system will validate the debit cap for every transaction in each session and the transactions will be restricted once the debit cap is exhausted. The participant BFIs can monitor its debit cap online during the session. Debit cap limit for all the participant BFIs shall be refreshed after the settlement of each session at RTGS.

5.6. System Validations

NCHL Central Module of *connect*IPS system shall perform validation of every transaction against pre-defined validation rules/ setups prior to routing and processing. Such validations shall include, but are not limited to, the followings:

- Transaction Thresholds: Transaction value does not exceed per transaction threshold limit.
- Debit Cap: For every transaction, the debtor participant does not exceed its debit cap limit.
- Member Status: Participants of the transactions are not suspended or at default.
- Payment Types: Sender participant is allowed to send direct credit or debit message and the receiver participant is allowed to receive such message type.
- Transaction Currency: Payment instruction currency is one of the supported currencies.
- Settlement Session: There is an open clearing session for presented message type, according to the provided currency, settlement date and purpose code.

6. Settlement Management

6.1. Settlement Sessions and Schedules

Settlement sessions shall be setup in the system with defined timelines. The transactions received and processed for participating debtor and creditor BFIs shall be netted for settlement at end of the scheduled time. Each settlement session shall be identified by a session identifier and currency.

The pre-defined intervals for NCP settlement of real-time retail payment switch shall be at least every hour within the operating time schedule of RTGS or as advised by NRB.

6.2. Settlement Process

Upon closure of each clearing session, Net Clearing Position (NCP) file shall be automatically generated by the system. NCP summarizes the financial netted position of each participant BFIs on a multilateral basis (either a net debit or net credit for each participant). NCHL shall submit the NCP file to RTGS for settlement of the positions of the participants in their settlement accounts at each settlement schedule.

Fees, charges and penalties files shall also be generated from the system at the closure of clearing session and sent to RTGS for settlement on agreed frequency by NCHL, which shall be notified to the participants. Computation of fees, charges and penality shall be as per the instrument or use case or channel. Participants shall be able to view and download related reports from the system.

NRB will be the settlement bank for retail payment switch and the arrangements for NCP settlement of other clearing and settlement systems will also be applicable for the retail payment switch. The rules for settlement of retail payment switch shall be as per the RTGS Rules and/or as advised by NRB.

6.3. Finality of Settlement

The retail payment switch transactions shall be irrevocable once response of debit confirmation is received by the system from the debtor bank and the service is rendered or credit leg of the transaction initiated. So, the finality of payment shall be immediate after debit instruction is successful. The Net Clearing Position (NCP) shall be settled through RTGS settlement account of the participant BFIs, which will be on a deferred basis and shall be backed by settlement guarantee fund (SGF).

It shall be obligatory for all members to settle their positions in RTGS at the pre-defined intervals. In case of insufficient fund for any of the participants and last resort at NRB including ILF facility been exhausted or not successful, SGF shall be invoked to meet the insufficient obligation of the defaulting participant. The execution of the SGF including application of penalties and fines to the defaulting participant shall be as per the Operating Procedure for SGF.

7. Session Exception

7.1. Session Extension

In certain and emergency conditions a member can request additional time for session settlement. NCHL may extend such session within the available timing of RTGS. Such conditions may be unavailability of fund in RTGS for a participant, technical issue at participants or NCHL or NRB. NCHL shall notify all the members with the session extension period.

7.2. Session Termination

NRB shall have the full authority to terminate a session for any reason it deems appropriate. NCHL will notify all the members in case a session is terminated. In such case, the payment transactions that are already replied shall be settled in the same session's NCP file either on the same business day or on the next available business day.

7.3. Sudden Holiday

In case a sudden holiday or force majeure (unscheduled holiday) is declared, the session that is already open shall be extended for the next available business day.

8. Responsibilities

8.1. Members Responsibilities

The debtor bank shall be Originating Depository Financial Institution (ODFI) and creditor bank shall be Receiving Depository Financial Institution (RDFI). They shall have responsibilities to:

1. Maintain uninterrupted and secured host-to-host connectivity with retail payment switch with isolated underlying ISO 8583 or ISO 20022 or similar protocol as specified to ensure that the payment instructions are transmitted as per the defined transaction workflows.

2. Set transaction limits and other controls within retail payment switch and the extended channels.

3. Ensure that adequate infrastructure and security arrangements for the system, integrations and associated services are implemented, timely upgraded and monitored. NCHL may specify additional security checklist to maintain a minimum standard for retail payment system.

4. Ensure that the required information in payment instruction are correct and it has debited the account before initiating such instructions by ODFI to the central. Based on arrangement and integration of the BFIs, such debit leg may be handled by retail payment switch itself or as debit not required cases. However, the ODFI shall be liable for any wrong data entry of payment instruction and shall make sure that the instructions initiated from its customers are valid, complete and necessary authorization or supporting documents are obtained from the customer.

5. Maintain sufficient balance at its RTGS settlement account. Also monitor and maintain Debit Cap limits by sufficiently funding Settlement Guarantee Fund (SGF) for itself and its underlying Indirect/Technical members to ensure that the transactions are not halted at any point of time due to limit utilization.

6. Provide its customers and/or indirect/technical with sufficient information to understand retail payment system payment processes, their obligations and processing timelines. It shall be the responsibility of the ODFI members to enter into an agreement, if required, or obtain debtor's consent to debit his/her bank account for transaction initiated from any of the channels (manual or alternate).

7. Enroll creditors/merchants within *connect*IPS system and verify their account setups for beneficiary credit by RDFI members. Also obtain necessary information and documents to ensure KYC and AML/CFT and/or sanction check of such creditors/ merchants. It shall be the responsibility of RDFI members to enter into an agreement, if required, obtain consent or authorization to credit its account for transactions received from any of the channels and to debit its account for return/reversal transactions.

8. Provide access to initiate transactions by its customers either from the channels provided with *connect*IPS (Bank Central, Retail Web, App, Gateway, APIs or Others) or any other alternate channels of the member itself. It shall be the responsibility of the ODFI to provide access to such channels and link bank account(s) and obtain necessary information and consent from the customer to ensure compliance to KYC and/or prevailing AML/CFT policies and/or sanction check.

9. In case of retail payment system being extended to alternate channels of the member for transaction initiation, it shall also ensure that the technical setups, security standards and controls in such channels are properly configured, tested and standard maintained in all future upgrades and/or releases. If similar service is used by the member BFI from multiple networks or providers, it shall not unduly place retail payment system or *connect*IPS in a disadvantageous location or form.

10. Advise its customers and creditors/merchants about fee and charges that shall be levied for usage of retail payment system and/or *connect*IPS and in line with NCHL published information to ensure uniformity. Such fees and charges applied through ODFI's alternate channels shall also be published.

11. Provide customer with enough information including return/reversal reasons in case transactions are rejected or failed due to technical or business or rejected by RDFI. Ensure that such failed and/or exceptional transaction are returned to the concerned party within the specified timeline and

based on the member's reconciliation. For technical failed transactions, ODFI shall also ensure that transaction fee, if any, shall also be returned.

12. Handle customer grievances and/or provide support to its customers with requested information in the event of exceptional transactions, disputes and complaints. Timelines and other exception handling shall be as per this document and/or dispute management procedure that may be issued separately. RDFI shall facilitate with its creditors/merchants for such exception transactions.

13. Advise NCHL, immediately of any event, which might affect its operations as a participant, including any contingent event, known or planned disconnection, or any significant changes in its core banking system or alternate channels that will or may restrict credit/debit of customer accounts.

14. NRB and/or NCHL may add any other roles and responsibilities as may be required.

8.2. NCHL Responsibilities

NCHL shall have the responsibilities to:

1. Maintain uninterrupted and secured host-to-host connectivity between retail payment switch and member BFIs to ensure that payment instructions are transmitted as per the defined transaction workflows.

2. Ensure that adequate infrastructure and security arrangements for the system, integrations and associated services are implemented, timely upgraded and monitored. It shall be the responsibility of NCHL to maintain the system and data in a secured environment with replication to Disaster recovery (DR) site on daily basis.

3. Operate and maintain daily operations of retail payment system for central module, for all participants and extended channels provided by NCHL. This includes setup and monitoring of daily exchange sessions for settlement (start and cut-off times), participants' transactions, system performance, technical failures, etc.

4. Set transaction limits and other controls within *connect*IPS system and the provided channels.

5. Ensure system validations on the payment instruction prior to sending to ODFI debtor bank and RDFI creditor bank.

6. Facilitate and provide necessary support to the members in case of exception transactions, disputes and reconciliation.

7. Monitor debit cap utilization and notify participants in case of reaching upper limit as per Operating Procedure for SGF. NCHL may ask the member BFIs to sufficiently fund Settlement Guarantee Fund (SGF) for itself and its underlying Indirect/Technical members to ensure that the transactions are not halted at any point of time due to limit utilization.

8. Generate NCP and FCP files for all participants to ensure timely settlement in RTGS as per its Operating Rules.

9. Establish Helpdesk for 1st line of support to all the participanting members and 2nd line of support to their customers during business hours. Necessary notification to the members shall be made by NCHL through an appropriate communication channel.

10. Maintain transaction archive for a period of atleast seven years and make it available to the members through National Archiving System, with direct access for a period of atleast six month.

11. Inform all participants of any event, which might affect the operations of retail payment system including any contingent events, known or planned disconnection or significant changes at any of the participants' end or at NCHL.

12. Monitor retail payment system to avoid misuse of the system from member's end and to ensure that the members comply with the Operating Rules and monitor. NCHL shall act as a custodian of the member customer data and information received and/or stored in processing, clearing and settlement of the transactions.

13. Publish related user manuals, guidelines, fees and charges schedule of retail payment system, as may be required, to facilitate member participants and their customers and/or creditors/merchants.

14. NCHL as an operator of the system shall not be held liable under any circumstances for any fraudulent cases involving transactions initiated from members.

8.3. NRB Responsibilities

Nepal Rastra Bank shall have the responsibilities to:

1. Settle the transactions initiated and processed in retail payment switch through RTGS. The settlement done by NRB shall be final and irrevocable.
2. Extend or re-schedule settlement sessions.
3. Terminate, suspend, resume or withdraw member.
4. Amend provisions of this Operating Rules upon recommendation of NCHL and/or member BFIs.
5. NRB shall not be held liable under any circumstances for fraudulent cases involving transactions.

All the above responsibilities requiring notification to the members will be made by NCHL through an appropriate communication channel.

8.4. Debtor Customer Responsibilities

Customers and/or users enrolled by the members shall have responsibilities to:

1. Provide correct information as part of its KYC to ODFI or other member including mobile number, email id and other details for enrollment and linking of bank accounts in the channels provided within *connect*IPS or any other alternate channels of the memebrs.
2. Ensure that each linked account in such channels are one-time verified from its BFI either physically or through any other channel provided by the BFI. Any changes thereafter in customers' details shall be timely done by the customer, whereas any changes in bank account details have to be re-verified from the respective bank.
3. Securely store its username, password, OTP, PIN, security questions and/or any other credential details. The member BFIs and/or NCHL shall not be held liable in any case of fraudulent transactions due to any sort of compromise of such credentials by the customer.
4. Ensure validity and the legality of transactions that it has initiated including compliance to the prevailing AML and CFT regulations. The BFI may reject and/or withhold any of the transactions that it deems violates any such policy/ regulations.
5. Ensure that its debit account is active and has adequate balance for transaction initiation.
6. Provide and verify beneficiary account and other details including bank name, branch name, account number, account name (where required) apart from transaction details to initiate a transaction. Such beneficiary details may be mapped to a virtual payment address (VPA) or an identifier, in which case such VPA or identifier shall be provided by the customer.
7. The transaction will be processed primarily based on the bank account number. However, additional validation features may be enabled by the beneficiary participant.
8. Be aware of the applicable fees and charges for using *connect*IPS through members or other channels of members.
9. Check and verify account statement or advice obtained from its BFI or the channels for necessary reconciliations of transactions. In case of any unreconciled transaction or any dispute/complaint, it shall consult its bank.

8.5. Creditor/Merchant Responsibilities

Creditors/ Merchants enrolled by the memebrs shall have responsibilities to:

1. Provide correct information and needed supporting documents as part of its KYC to creditor bank for creditor/ merchant enrolment and linking of its bank account(s) and ensure at all times that such account is active. Any changes thereafter in bank account details have to be re-verified and re-configured through the respective bank.

2. Ensure validity and the legality of the transactions that is initiated including compliance to the prevailing laws and regulations of AML/CFT and other relevant legislations. The bank may reject and/or withhold any of the transactions that it deems violates any such policy/regulations.

3. Securely store its username, password, OTP, PIN, and/or other credential details. Member BFIs and NCHL shall not be held liable in any case of financial or non financial loss/damage or fraudulent transactions caused due to any sort of compromise of such credentials by creditor/ merchant.

4. Be aware of applicable fees and charges for using retail payment system or *connect*IPS through members and shall ensure that they are communicated to the debtor/customer, if they are liable for such fees and charges.

5. Inform its customer or debtor directly or through creditor member, in case of exceptions like product/service not rendered, to initiate refund/reversal process. Ensure that its account has adequate balance for initiating return/reversal transactions and shall verify correct beneficiary identifier or beneficiary account details to initiate such return/ reversal transaction.

6. Check and verify account statement or advice obtained from its BFI or the channels for necessary reconciliations of transactions. In case of any unreconciled transaction or any dispute/complaint, it shall consult its bank.

7. Handle its debtor customers for any damage, claim, issue arising or in connection with any purchase of goods/services or proof tof such purchse thereof from the creditor/ merchant through retail payment system or *connect*IPS. The creditor/ merchant understands and agrees that all such losses, damages and issues shall constitute a claim against it by customers and in no cases the member BFIs, NCHL and/or party to the system shall be held responsible for.

In case of creditors/ merchants integrated with API or payment gateway, it shall have additional responsibilities to:

1. Ensure that security standards and controls in such integrations and/or web portals, as may be prescribed by its bank and/or NCHL, are maintained and integrated accordingly, such that information provided by the customer are safeguarded against possible misuse.

2. Ensure that technical setups are completed and tested prior to rollout of integration and portal.

3. Ensure that customers are not required, at any time, to provide or store any details of debtor bank account(s) and/or credentials of the channel in the creditor/ merchant's portal.

4. Maintain service level agreement for debtor customer's grievances and/or return/ reversals as the case may be.

9. Fees, Charges and Penalties

All members in retail payment system as part of NPS including *connect*IPS system shall pay fees and charges to NCHL for their participation and its usage. NCHL shall reserve the right to define or modify the fees and charges at any time with prior notice with sufficient time provided to the participants. However, the applicable fees, charges and penalties shall be fixed in a fair, reasonable and non-discriminatory manner.

9.1.   Annual Subscription Fee

Each Member shall pay annual subscription fee to NCHL. Such fee to the direct members shall be waived, who have already subscribed to NCHL-ECC or NCHL-IPS. Access to retail payment switch of NPS for indirect and technical members shall be through NPI and hence the subscription shall be for NPI rather than retail payment switch for such members.

9.2.   Transaction Fee

1. Participant shall pay transaction fees on each transaction, corresponding to which the fees liability could be on debtor or creditor based on type of the transaction.

2. Transaction fee shall be on a revenue sharing basis between NCHL, Debtor bank and Creditor bank, except for specific cases or instrument or channel defined as per the rules of such case or instrument or channel. For transactions with revenue sharing, the participants shall ensure that their customers (Debtor or Creditor) are not inappropriately charged for transaction fee other than as published by or agreed with NCHL or as mandated by NRB.
3. NCHL shall circulate transaction fees structure including sharing basis with the participating BFIs based on the products and/or creditor/merchant of the transaction as and when they are activated or changed in the system to all the participants.
4. If the liability of such fee is on debtor customer in the channels provided with *connect*IPS system, then such fee schedule shall be published by NCHL. The fees for transactions initiated from channels of the members and processed in retail payment switch shall be published appropriately by the respective members.

9.3. Other Charges

NCHL or as per NRB's instruction may define and apply Other Charges/ Penalties on:
▪ Insuficient funding at settlement bank account.
▪ Complaints on delayed customer account credit.
▪ Complaints such as Incorrect Rejection Reason.
▪ Charge backs as per exception handling cases

10. Reports

The system shall provide different set of reports and queries that will be available for relevant users of the system, which includes, but are not limited to, the following:

Retail and Creditor Modules:
1. Transaction Query
2. Transactions Report/ Advise

Bank Central Module:
1. Transaction Query
2. Fees and Charges Query
3. Billing Summary Report
4. Net Clearing Position Report
5. Transaction Report/ Advise

11. Continuity of Business

This section provides the continuity of business information for the related parties of the system in the unlikely events of disruption to preserve customer confidence, ensure regulatory compliance and mitigate systemic risks. NCHL shall ensure availability, consistency and recoverability of the retail payment system. All participants shall also adopt and implement a business continuity plan to ensure its resilience and preparedness for any such unplanned disruptions.

The participants shall contact the first line support team (Helpdesk) at NCHL through the communication channel made available by NCHL in case of facing any problems in order to get the suitable support during disruptions such as communication failure or line disconnectioss.

11.1. Communication Failure at Member's Site
The member shall immediately inform NCHL in case of facing any communication failure, connectivity problem or any other disruption situation from their end.

NCHL shall evaluate the disruption situation (if it is a communication failure or can be resolved within a short period without having any impact on the continuity of business) and, provide the member with the suitable contingency procedure based on the level of failure or inform NRB and all participants about the distruption (if cannot be resolved within such period).

11.2. Failure at NCHL Main Site

NCHL shall immediately inform NRB and all participants of the failure and then activate the Disaster Recovery site to continue or re-start the system accordingly. The members will be connected to the DR site automatically.

11.3. NCHL Disaster Recovery Plan

In addition to the high availability provided for the system (from the main site and DR site), NCHL shall maintain and periodically test its disaster recovery plan to address

1. the replication and restoration of retail payment system that ensures processing from alternate facility;
2. the backup and recovery of critical data within defined recovery point objective;
3. the operational recovery within defined recovery time objective.

12. Helpdesk

A dedicated first-line support team shall be available during NCHL's office hours to support the participant BFIs for smooth operation of the system; troubleshoot and provide suitable diagnosis if any member faces problem in the system. The participant BFIs shall assign a person to contact the helpdesk and report problems through a proper communication channels that will be shared with NCHL.

Moreover, the helpdesk shall have clear prioritization criteria to the requests, such that the reported query shall be categorized according to their urgencies and priority levels in order to provide a proper handling to each priority level.

Priority	Definition
Urgent	A catastrophic problem which may severely impact rretail payment system including *connect*IPS operation, or in which the system is down and not functioning with no procedural work around available. A prompt response and a quick action must be taken
High	A problem where retail payment system including *connect*IPS is functioning but in a severely reduced capacity. The situation is causing significant impact in the retail payment system business and functions.
Normal	A problem with a medium or low impact to retail payment system including *connect*IPS business and functions. Such problem is considered as a "Minor" with limited loss or no loss of functionality or impact to the participant BFIs' daily process.

13. Dispute Management

1. NCHL shall not have any duty to determine legality, validity or enforceability of any transaction processed through retail payment switch or to determine whether such transaction is contractually void or voidable. NCHL shall be entitled to consider all transaction(s) initiatd from the member and executed under the system as legal, valid and enforceable.
2. In case of customer complaints related to retail payment system transactions, the first point of contact for customer and merchant/ creditor shall be their respective BFIs or Indirect/ Technical Member. In case of merchant payments, in which service/product is not rendered, the customer's first point of contact shall be such merchant and/or its debtor bank. If any information and necessary coordination are required to the BFI, then it shall request to NCHL for appropriate support.

3. In case of a disputed transaction reported by an authorized person from debtor bank and/or NCHL, the creditor bank shall support in resolving the dispute and/or investigation, until which it shall block the available transaction amount, as may be the case, based on such request.

4. In the event of dispute or differences arising between the participants and if the parties are unable to resolve amicably, the matter shall be referred to NCHL for formation of Arbitration Tribunal and NCHL shall be responsible to appoint an independent sole Arbitrator and shall be immediately notified to disputed parties. The arbitration proceedings shall be conducted in Kathmandu in accordance with the provisions of Arbitration Act, 2056 of Nepal, and enactments/ modifications, if any, thereof. The Arbitration decision shall be final and binding upon all the parties. The cost of the arbitration shall be equally borned by the disputed parties.

5. In the event of the dispute between NCHL and the participant(s), which the parties are unable to resolve amicably, the matter shall be referred to a final and binding arbitration.

6. NRB shall be the final authority to interpret this Operating Rules.

14. Insurance

NCHL undertakes no responsibility in respect of any failure/defect, forgery, theft, or any wrongful copying of any software, password, or any combination of them, assigned to or designated by a member/participant or NCHL. It is a responsibility of each Member/Participant to have an insurance coverage against such or any other incidents.

15. Obligations

15.1. Indemnity

1. Participants shall indemnify and hold harmless NCHL, its directors, officers, and employees from all liabilities or expenses (including but not limited to reasonable attorney fees and costs of investigation and defence) resulting from: (i) any business loss resulting from breach of the terms of this Operating Rules; (ii) any violation of any statute, ordinance, or regulation; (iii) any act or omission constituting negligence or wilful misconduct or breach of fiduciary duty in connection with NCHL performance or services. Participant hereby represents and warrants that in the event of any suits, claims, disputes or such differences are brought directly against NCHL with respect to retail payment system including *connect*IPS, as a consequence of breach of the terms and conditions of this Operating Rules, participants shall assist NCHL in defending such suits, claims, disputes or differences. (iv) in the event that NCHL becomes aware of any obligations, representation or warranty of participants as being false or misleading, participants shall be liable to indemnify NCHL for any such injury, loss or damage arising out of such misrepresentation. For clarity, participants shall only be liable for actions that originated from participants or any third party acting on its behalf and participants shall not be liable for issues arising solely and independently from NCHL.

2. In the event that after a member has participated in the system, NCHL becomes aware of any obligations, representation or warranty of the participant as being false or misleading, participant shall be liable to indemnify NCHL for any such injury, loss or damage arising out of such misrepresentation.

3. The debtor and creditor customer agree, at its own expense, to indemnify, defend and hold harmless NCHL and the participating BFI, its directors and employees, representatives, agents, and its service providers against any claim, suit, action or other proceeding brought against NCHL and/or the BFI, its affiliates, directors and employees, representatives or agents by a third party, to the extent that such claim, suit, action of other proceeding brought against NCHL, BFI, its service provider, directors and employees, representatives or agents is based on or arises in connection with the use of the system.

15.2. Confidentiality

Participant shall use all reasonable endeavors to ensure that information relating to retail payment system, which is not in the public domain shall be treated as confidential and shall not be disclosed to anyone except with the prior written consent of NCHL and except as may be required by law or by any Government Authority. Nothing in this clause shall however prevent any of the parties from disclosing any of the information to their agents and representatives or attorneys, provided that such disclosure is on a need to know basis and for the purpose of normal functioning of business activities. All information provided by participant in retail payment system shall not be used to secure a commercial advantage over the other.

15.3. Force Majeure

NCHL shall promptly notify NRB and participants in writing or an appropriate channel of any situation or of occurrence of any event beyond the control of NCHL, which makes it impossible for NCHL to continue operation of retail payment system. NCHL shall not be liable for any delay in meeting or for failure to provide its services under this Operating Rules due to any cause beyond its reasonable control.

16. Annexure: Return Reason and Response Codes

Debit Response Code	Debit Description	Credit Response Codes	Credit Description
"000"	Debit Success	"000"	"Credit success"
		"DEFER"	Deferred credit payment/success
		"999"	"Credit Time Out". (Considered as credit success in settlement)
		"ENTR"	"Credit in progress". (Call back API to be used to get final status).
		"1001"	"Bank's network not reachable". Subject to debit reversal.
		Other CBS Codes (Credit Rejected)	"Credit Rejected". (Subject to debit reversal).
"1001"	"Bank Network not reachable"	"1000"	"Credit Rejected As Debit is Rejected"
"999"	"Debit ISO Time Out"	"1000"	"Credit Rejected As Debit is Rejected"
"ENTR"	"Debit In Progress"	"ENTR"	"Credit In Progress"
Other CBS Codes	Debit Rejected	1000	"Credit Rejected As Debit is Rejected"

Note: If Debit status or Credit status is Empty or Null, it will be considered as Time-Out transaction and will require manual reconciliation by the participating BFIs.